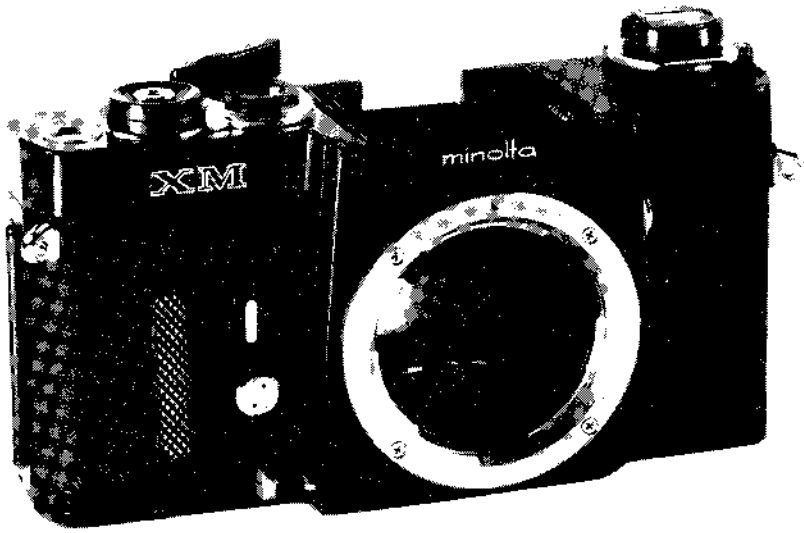
Service Manual

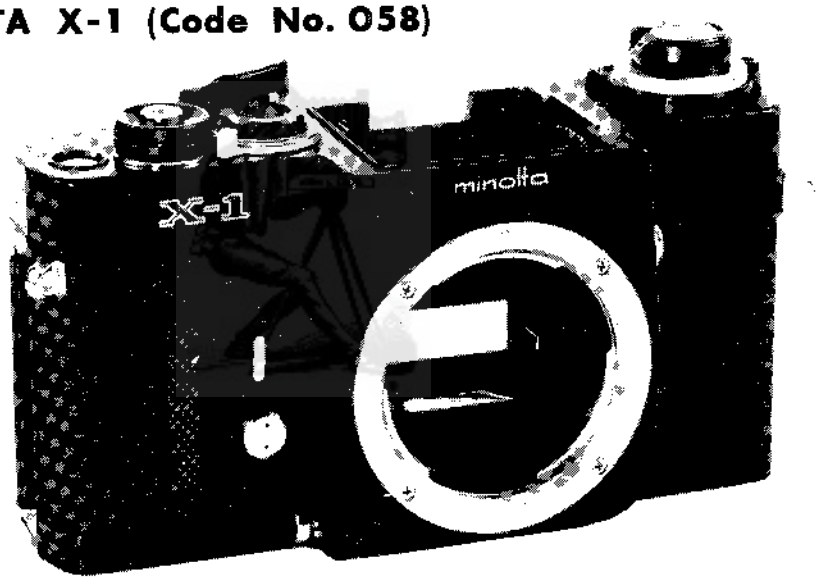
MINOLTA XM
MINOLTA X-1
MINOLTA XK

Minolt

MINOLTA XM (Code No. 054)



MINOLTA X-1 (Code No. 058)



MINOLTA XK (Code No. 062)

FOREWORD

We have issued this service manual to assist you in carrying out complete repair service. It gives your thorough description of the services which are essential to this Minolta product, and thus enables you to be your own consultant in maintaining quality and precision.
This service manual consists or eight parts, viz., specifications, explanation of mechanism, parts list, disassembly instructions, reassembly instructions, adjustment instructions, check list, and special tools list. For easy reference, each subject has an index sheet.

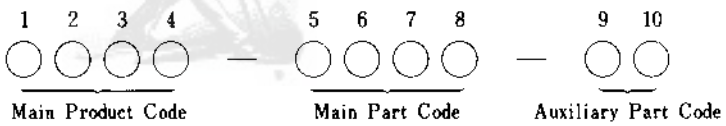
How to use the Service Manual

Specifications: This gives various product particulars item by item. It serves as technical reference material when inquiries are received from domestic and overseas customers.

Explanation of mechanism: Products which have new mecnanism are explained in detail.

Parts list:

1) This is composed of a table of contents, disassembled diagrams, parts numbers, parts names, and quantity of parts.
2) It is arranged with disassembled or exploded drawings on the left page and the parts numbers, parts names and quantity of parts on the right page.
3) On each page, the disassembled parts bear their respactive parts numbers.
4) Parts which are not supplied are indicated by "NO SUPPLY" in place of parts numbers in the disassembled diagrams.
5) "See Page·····" appearing in the disassembled diagrams incicates that the blocks concerned are shown disassembled on cited page(s).
6) Make-up of the Parts Code: The parts code is indicated by ten number spaces as illustrated below:



7) Indication of Parts Numbers:

A. Coupled Parts Numbers: A main part code with 0 in the fifth space indicates coupled parts.

Example: 5 6 7 8 — 9 10
0 1 0 1 — ○ ○

B. Simple Parts Numbers: A main part code with 1 to 9 in the fifth space indicates simple parts.

Example: 5 6 7 8 — 9 10
2 0 0 4 — ○ ○

C. Auxiliary Part Code Numbers: The 9 th and 10 th spases are for auxiliary code numbers indicating how often the parts have been altered.

Example: 5 6 7 8 — 9 10
○ ○ ○ ○ — 0 2

D. Coupled parts which can also be supplied as simple parts are indicated with light-face-type figures as shown below:

Example: **0101 — 01** (Coupled parts)
1124 — 01

E. Speciel care in observing the related footnote is necessary with referen to parts having a ★ Symbol in front of their numbers.

8) Revised pages will be issued indicating the number of times it has been revised by using the numbers 1, 2, 3 and so on following a hyphen after the page number, as shown in the following example.
When revision are made on page 1, the first revision will be indicated by 1-1 the second by 1-2, the by 1-3 and so on.

Disassembly instructions: This is an easy-to-understand guide that gives clear, step-by-step instructions so that even beginners can disassemble.

Reassembly instructions: This further an easy-to-understand guide gives similar clear, step-by-step instructions for reassembling this product.

Adjustment instructions: This is a guide to the main points of adjustments to be accomplished after repair of this meter.

Check List: After repairing this camera, be sure to check that it conforms to all the contents of the check list.

Special Tools List: This is a list of the special tools required for repairing or adjusting this camera.

MINOLTA XM (054)
MINOLTA X-1 (058)
MINOLTA XK (062)

TYPE Interchangeable-finder-type 35mm single lens-reflex with electronic focal-plane shutter.

SHUTTER

Electronically controlled focal-plane type with titanium curtains with one mechanically controlled speed plus "B".

Shutter speeds: 16,8,4,2,X,B,1, 1/2, 1/4, 1/8, 1/15, 1/30, 1/60, 1/125, 1/250, 1/500, 1/1000, 1/2000 sec.

Electronic speeds:
16 to 1/2000 sec. in steps or stepless from 1 to 1/2000 sec.

Mechanical speeds:
X (1/100 sec.) and "B"

Speed dial: Single, non-spining, equal space, click stop dial.

Flash synchro: X Contact: 1/100 sec. and longer F.P Contact: All step speeds through 1/2000 sec.

Synchro contact:
Single terminal, switchover system.

Self timer: Lever type variable operating time from 6 to 10 sec.
Operating angle 100° to 150°

FILM ADVANCE

Lever type, Single or multiplestroke.
Winding angle 110° after 20°

Unengaged movement:
Advancing-type

Film counter: Automatic resetting counter showing exposed frame number.

Film rewinding: Rapid rewinding with crank.

Film loading: Raise the back cover open release knob until some resistance is felt, with a slight additional pull, the back cover will automatically "pop" open.

Film indicater: ASA and DIN converting scale (back cover), used film 12, 20, 36 exp. for (NEG, Daylight, B & W, Tangsten type) mark.

Multiple exposures:
Possible with film advance release. Depessing the film advance release allows the shutter to be cocked without moving the film forward.

VIEW FINDER

Five interchangeable finders are available for use with body

*	Auto Electro Finder (AE Finder)	8219 - 200
*	Match Needle Finder (M Finder)	8219 - 300
*	High-Magnification Finder (H Finder)	8219 - 400
*	Waist-Level Finder (W Finder)	8219 - 500
*	Plain Finder (P Finder)	8219 - 600

Focusing screens
Nine different focusing screens.

*	Microprism	(Type M)	8220 - 110
*	Split-image	(Type P)	8220 - 120
*	Split-field microprism collar	(Type PM)	8220 - 130
*	Mat fresnel	(Type G)	8220 - 210
*	Microprism spot	(Type C_1)	8220 - 310
*	" "	(Type C_2)	8220 - 320
*	" "	(Type C_3)	8220 - 330
*	Double cross mark	(Type H)	8220 - 410
*	Measuring scale	(Type S)	8220 - 420

Mirror: Oversize, quick-return type, with lock-up device, no image cutoff even with exterme telephotos (PO value: 140mm). install brake of the mirror bound.

OTHERS

Auto-senswitch: Switching on the Auto-Exposure circuitry.

Accessory mount:
Accepts adapter for cordless and cord contact flash units.

Flash contact: Contact point for cordless flash units.

Mount lock: Secures accessories on mount.

Battery checker: When batteries have ample strength, light glows as checker level is pressed down.

Battery: Two 1.5V silver-Oxide batteries JIS-G13 : type S-76, MS-76.

Film advance locks when voltage insufficient.

SIZE

Dimention: 144.5(W) x 84(H) x 48(D)mm (Body only)
5-5/8" x 3-1/4" x 1-7/8"

Weight: 670g. (23.64 oz). (Body only)

Sales Date: Apr. 1973

FEATURES

1. ELECTRONIC FOCAL-PLANE SHUTTER

A prime key to the unequalled present capabilities of the XM and to exciting new functions to come in future is its electronically controlled titanium-curtain focal-plane shutter.

2. STEPLESS AUTOMATIC ELECTRONIC EXPOSURE CONTROL

The Auto Electro Finder's integrated circuitry enables aperturepriority automatic electronic exposure control for all applications from snapshots through such highly specialized professional work as photomicrography with the precision of stepless shutter speeds.

3. TTL FULL-APERTURE "CLC" METERING

Light is metered through the taking lens at full aperture for utmost accuracy with automatic adjustment where needed for best exposure by Minolta's exclusive "CLC" system. Stop-down metering is also possible.

4. INFORMATION-CENTER VIEWFINDER

Clear indications in the finder give you all the shooting information you need continuously as you view: Shutter and aperture setting, exposurecontrol mode, LED exposure warning when meter's range is exceeded.

5. AUTO "SENSWITCH"

A unique device on the camera body responds to your hand to keep exposure-control power on whenever the camera is being held in usual operation. An alternate switch on the finder can be used instead if you wish.

6. AUTOMATIC OPERATION 4-1/2000 SEC.

Simply set the aperture you want, and the XM varies the shutter speed automatically and steplessly to yield pinpoint exposure for light being metered and other conditions: Exact exposure without step compromises.

7. LED EXPOSURE WARNING SIGNAL

If metered light falls below the 1-EV lower limit of the meter's accurate sensitivity range, a light-emitting diode in the finder blinks red, warning you to adjust exposure conditions.

8. AUTO-EXPOSURE OVERRIDE

Rotating this control to the left or right with the thumb allows manual override for stepless exposure adjustment from 2EV under to 2EV over the value being set automatically.

9. MANUAL OPERATION 16-1/2000 SEC.

On match-needle-manual mode, the XM offers the greatest range of step speeds available on an SLR today electronic accuracy from a super-fast 1/2000 to long exposures of a full 16 seconds.

10. PLAIN FINDER

This interchangeable finder is one of the five initially available. It is professional eye-level pentaprism type without meter, but again both shutter speed and F-stop set appear conveniently and unmistakably above the viewframe.

11. MATCH-NEEDLE FINDER

This finder offers match-needle/manual exposure control with both F-stop and shutter speed continuously visible without looking away from the eyepiece. Like the Auto Electro Finder, It features full-aperture TTL, CLC meterring.

12. HIGH-MAGNIFICATION FINDER

For close-ups, telephotography, or other specialized applications that require critical focusing, this interchangeable finder magnifies the entire field of view over six times and adjusts to any eye.

13. WAIST-LEVEL FINDER

This finder is intended for copying, candids, and all applications where viewing from above the camera is desirable. It has a built-in magnifier and, like all the finders, allows setting the full 16-1/2000 sec. range of speeds.

14. INTERCHANGEABLE FOCUSING SCREENS

The split-image-spot focusing screen supplied as standard with the XM is instantly interchangeable with eight others to suit user preference or the specific photographic purpose.

15. STAINLESS BAYONET LENS MOUNT

Our SLR bayonet mount which with Minolta meter coupling makes lens installation a single motion with no further settings has been a major Minolta advantage for 15 years. On the XM, this mount is made of durable stainless steel.

16. OVERSIZE AUTO-MANUAL MIRROR

There's no image cutoff even with longest lenses, thanks to the XM's oversize quick-return mirror, which features an unsurpassed PO value of 140mm. It can be locked up manually by simply turning the stop-down button.

17. MULTIPLE-EXPOSURE CAPABILITY

Any number of exposures per frame can be made simply and positively using the film-advance release button: Another big advance in creative capability with the eminently versatile XM.

18. 30 INTERCHANGEABLE LENSES

The current top-quality line-up of Rokkor and Leitz lenses equipped with Minolta's SLR bayonet ranges from 16mm MC fisheye to 1600 extreme telephoto and takes in a number of meter-coupled Zoom Rokkors and special-purpose lenses.

19. ULTRA CLOSE-UP AND MICRO ACCESSORIES

A full range of photomacrography and-micrography equipment for the XM includes several special macro lenses, auto tubes and bellows, microscope attachments and a sophisticated system unit.

20. FULL FLASH EQUIPMENT AND OTHER ACCESSORIES

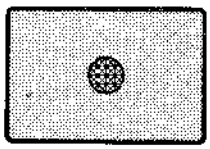
Included in the complete line of accessories you can use with the XM are conventional bulb flash units with cords, cordless "hot-shoe" strobes, and most advanced auto-flash units that calculate their own exposure.

FOCUSING SCREENS

For use with the XM, Minolta offers nine different focusing screens to satisfy varying personal preferences for general photography and to more easily accomplish difficult focusing tasks. they may be changed as quickly and simply as switching finders.

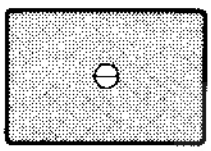
Type M. (8220 - 110)

Mat fresnel field with central microprism spot. For use general photography.



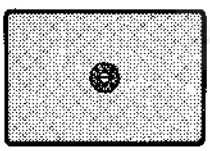
Type P. (8220 - 120)

Mat fresnel field with central horizontallyoriented split-image rangefinder spot, For general photography. This screen is standard equipment on the Minolta XM.



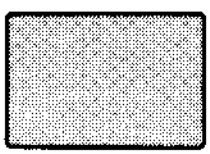
Type PM. (8220 - 130)

Mat fresnel field with central split-field spot surrounded by microprism collar. For general photography.



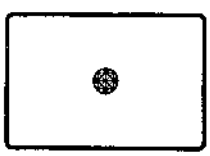
Type G. (8220 - 210)

Mat fresnel field only.
For general photography.



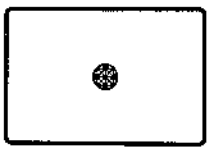
Type C_1. (8220 - 310)

Clear fresnel field with microprism spot, For general photography with certain lenses.



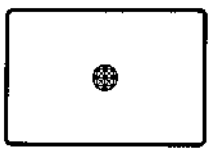
Type C_2. (8220 - 320)

Same as C_1 for certain other lenses.



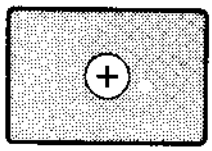
Type C_3. (8220 - 330)

Same as C_1 for certain other lenses.



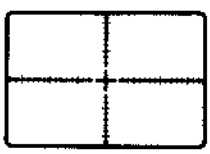
Type H. (8220 - 410)

Mat fresnel field with central clear circle containing etched double corss mark, For astrophotography, photo-micrography and other high-magnification applications.



Type S. (8220 - 420)

Clear fresnel field with central cross and parallels plus measuring scales, For parallax focusing close-ups, photo-micrography and other high-magnification applications.



Explanatory Notes of the Mechanism

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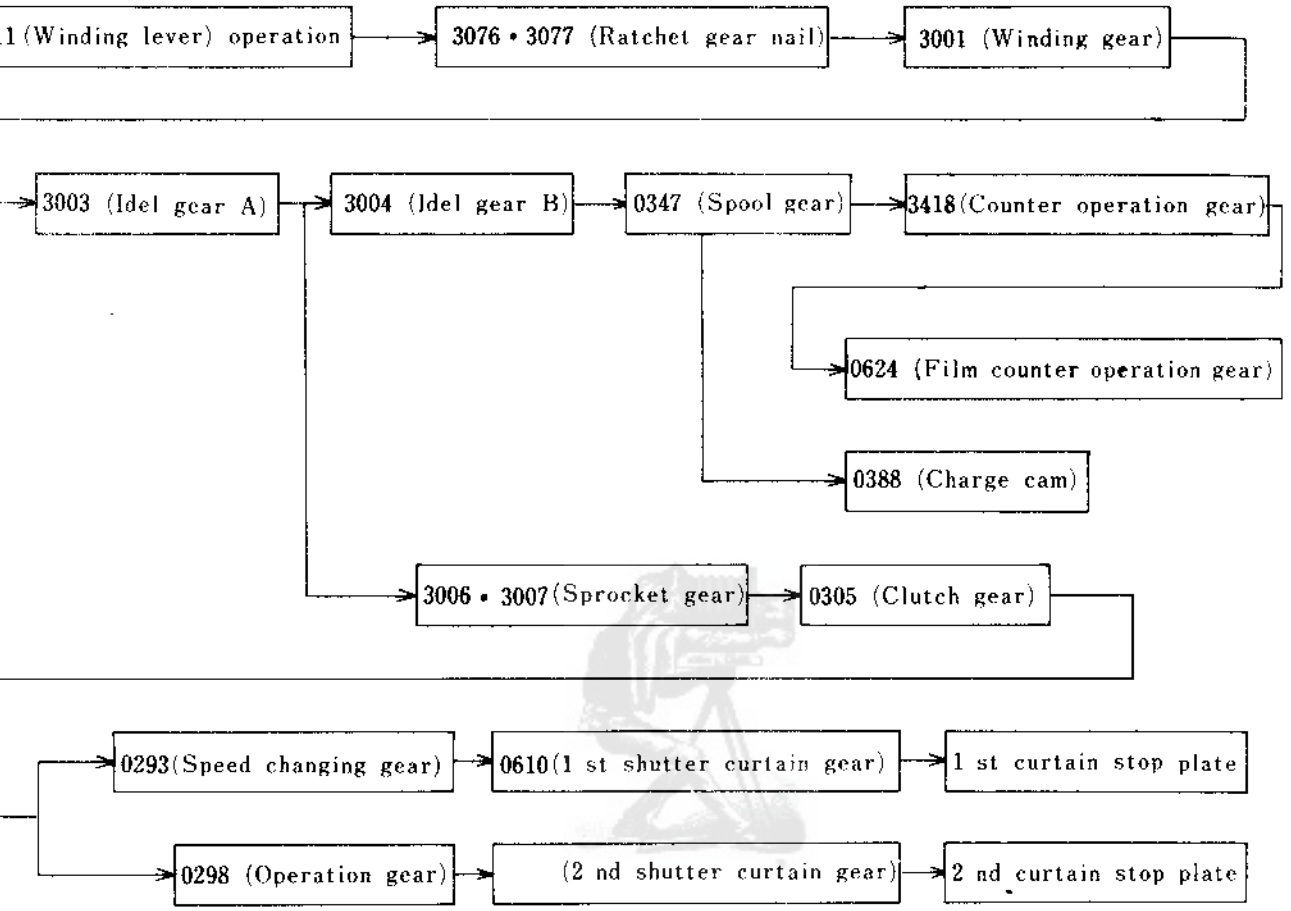
A. Explanation of the Gear Train

Operation Sequence


1 (Winding lever) operation
3076 • 3077 (Ratchet gear nail)
3001 (Winding gear)
3003 (Idel gear A)
3004 (Idel gear B)
0347 (Spool gear)
3418 (Counter operation gear)
0624 (Film counter operation gear)
0388 (Charge cam)
3006 • 3007 (Sprocket gear)
0305 (Clutch gear)
0293 (Speed changing gear)
0610 (1 st shutter curtain gear)
1 st curtain stop plate
0298 (Operation gear)
(2 nd shutter curtain gear)
2 nd curtain stop plate

Note: → indicates interlocking relations.

◎ The stopping of the winding lever operation is determined by the position where the 1 st and 2 nd curtain stop plates cease to turn round.

◎ Gear Engagement Positions

3005 (clutch gear) ←→ 3007 (sprocket gear down side)

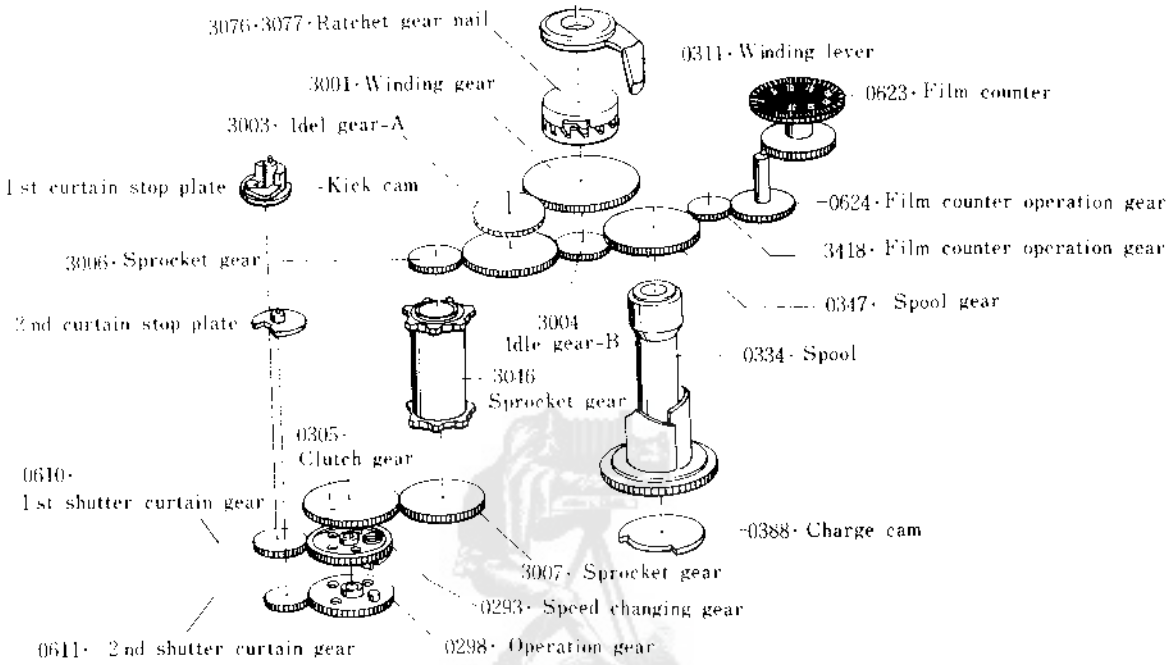
0624 (counter operation gear) ←→ 3418 (counter operation gear)

0293 (speed changing gear) ←→ 0610 (1 st shutter curtain gear)

0298 (operation gear) ←→ 0611 (2 nd shutter curtain gear)

◎ 3006 (sprocket gear)

Fig. 1


3076·3077·Ratchet gear nail
0311·Winding lever
3001·Winding gear
0623·Film counter
3003· Idel gear-A
1st curtain stop plate
-Kick cam
-0624·Film counter operation gear
3006·Sprocket gear
3418·Film counter operation gear
0347· Spool gear
2nd curtain stop plate
3004
Idle gear-B
0334·Spool
3046
Sprocket gear
0305·
Clutch gear
0610·
1st shutter curtain gear
-0388·Charge cam
3007·Sprocket gear
-0293·Speed changing gear
0611· 2nd shutter curtain gear
0298·Operation gear

B. Explanation of the Shutter Operation Mechanism

(1) Electrical Controls ◎ Fully Automatic Exposure Mechanism (Speed dial set at "AUTO")
◎ Manual Exposure Time (Manual exposure mechanism)

(2) Mechanical Shutter Speed Control (for "X" = 1/100)

(3) Bulb (B) Exposure Control

(Explanatory diagrams vary slightly from actual diagrams.)

(1) Automatic Exposure by Electrical Control (See Fig. 2.)

◎ Film is completely wound.

◎ On setting the speed dial to "AUTO" or "optional speed", Q does not come in contact with V′ but with V whose diameter is large.

◎ J′ and P·P′, R and P′, and O′ and P″ are out of contact.

① Push down release plate R which is interlocked with the shutter button.

② The magnet (Mg) is turned on when the shutter button is pressed down and remains turned on while the mirror and the pre-set operate. It is then turned off when the mirror and the pre-set are reset.

③ When the shutter button is pushed down, the mirror operates to turn the start-stop lever B (on the side of the mirror box) counterclockwise.

④ Control plate A is released from the stop position and is then forced by spring T to turn clockwise.

⑤ Pin A′ of A turns switch lever C counterclockwise.

⑥ Switch lever C is turned to kick F′, causing the 1 st shutter curtain stop lever F to turn clockwise.

⑦ When the 1 st shutter curtain shaft I is released from the stop position, the 1 st shutter curtain begins to run.

⑧ C moves from the insulated surface of printed base plate D to the energized surface of the D, causing the condenser for the time lag of the electrical control circuit to operate.

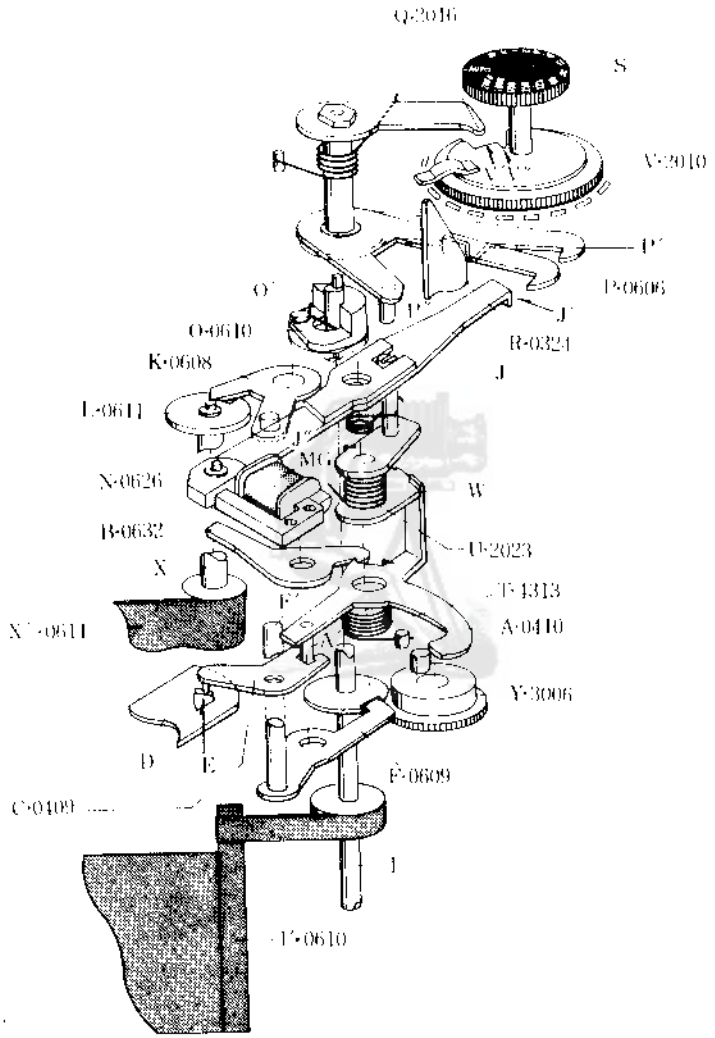
⑨ After the electrical control circuit has operated for a specific period of time, the magnet (Mg) is de-energized, permitting the 2 nd shutter curtain check lever J to be drawn by spring U and turn clockwise together with driving lever W.

⑩ J″ turns the 2 nd shutter curtain stop lever K clockwise, releases the stop plate and causes the 2 nd shutter curtain X′ to run. The shutter is then closed to complete its operation.

⑪ When the shutter is activated, sprocket gear Y turns clockwise to rotate activation lever A counterclockwise. The activation lever A is then stopped by start-stop lever B.

⑫ When A is activated, W turns to attract armature N of the 2 nd shutter curtain check lever J to the magnet (Mg) for another photograph.

Fig. 2



(The illustration is designed for explanation only and is different from the actual parts.)

(2) Mechanical Shutter Speed Control ("X"=1/100)

◎ When the speed dial is set at "X", the electrical circuit is set at "1/100". In other words, when a battery is used, electrical and mechanical controls are paralleled. Mechanical control is carried out only when no battery is used.

① Set the speed dial S to "X".

② Q fits into the concave V′ on cam V.

③ Shutter release plate R is pressed down. → B interlocked with the mirror turns counterclockwise. → A turns clockwise. → C turns counterclockwise. → F turns clockwise. → I rotates to start the 1 st shutter curtain. → However, J′ and P·P′ are connected to each other.

④ Stop plate O on the 1 st shutter curtain shaft turns clockwise. → Kick cam O′ kicks P″. → The connection between P·P′ and J′ breaks. → J turns clockwise. → J kicks K. → The 2 nd shutter curtain is released from the stop position. → The 2 nd shutter curtain X′ runs.

○ When the 1 st shutter curtain shaft turns for the specified length, cam O′ on stop plate O pushes and kicks P″, resulting in the release of the connection between P·P′ and J′. J turns to kick K, causing the 2 nd shutter curtain X′ to run and the shutter is then closed.
The exposure time in this case ranges from the starting of the 1 st shutter curtain run to the time when cam O′ pushes P″. This requires mechanical 1/100 second.

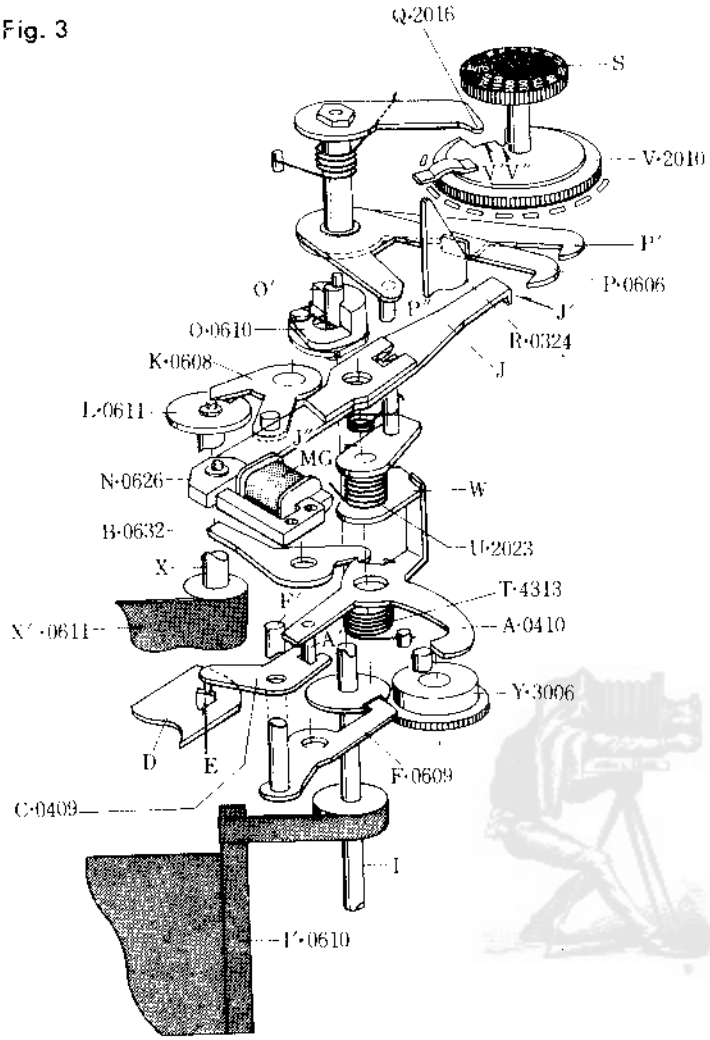
○ As shown in Fig. 4, cam O″ on stop plate O which is provided on the 1 st shutter curtain shaft is always pulled toward the center of the shaft by spring Z.
As indicated in Fig. 5, when the 1 st shutter curtain shaft rotates at high speed after a full turn, the centrifugal force acting on O″ overcomes the force of spring Z and O″ moves P″.

○ As shown in the travel curve of the shutter indicated in Fig. 6, the centrifugal force remains small within the comparatively slow travel of the 1 st shutter curtain, breaking the contact between O″ and P″. However, when the shutter shaft turns at high speed after a turn, the centrifugal force increases, permitting O″ and P″ to move into the position where they are in contact.

⑤ When the shutter is activated, sprocket gear Y turns clockwise to rotate activation lever A counterclockwise. The activation lever A is then stopped by start-stop lever B.

⑥ When A is activated, W turns to attract armature N of the 2 nd shutter curtain check lever J to the magnet (Mg) for another photograph.

Fig. 3



(The illustration is designed for explanation only and is different from the actual parts)

Fig. 4

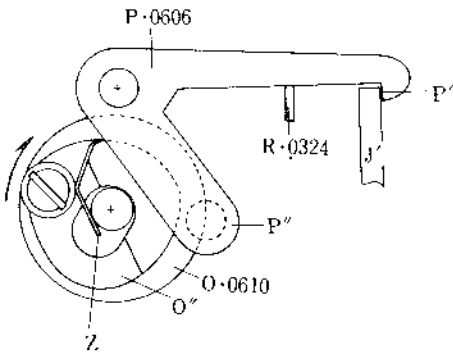


Fig. 5

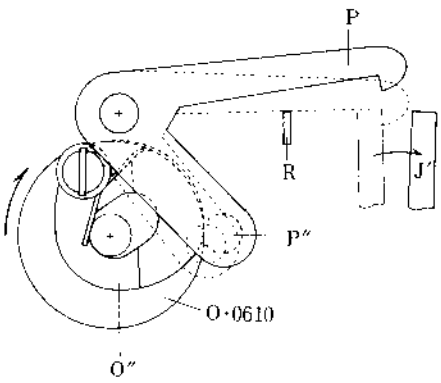
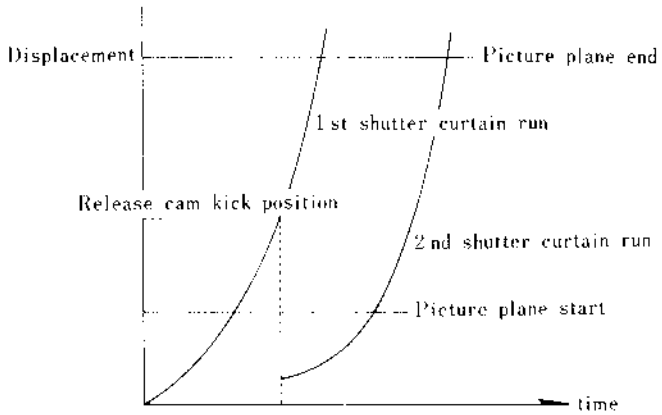


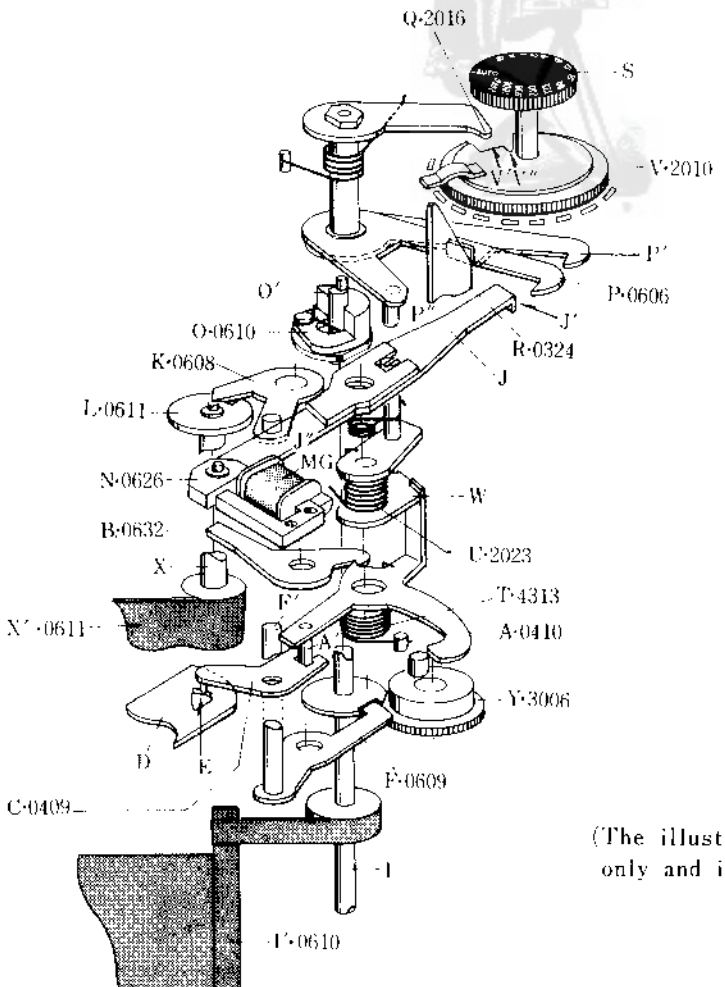
Fig. 6



(3) Bulb Exposure Control

① On setting the speed dial S to "B" (bulb), Q fits into concave V″ of cam V.
② Shutter release plate R is pressed down. → Lever P rotates until Q comes in contact with V″. → P·P′ and J′ are connected to each other.
③ Therefore, the 1 st shutter curtain runs. → Q′ turns clockwise. → Q′ kicks P″. As shown in Fig. 8·9, however, P and P′ are on the same shaft and P discontinues its connection with J′, with P′ and J′ remaining connected.
④ When release plate R is reset after operation, R pushes P′ out and P′ is disconnected from J′ (Fig. 10). The 2 nd shutter curtain check lever J is turned clockwise by the force of U. J″ kicks K. The 2 nd shutter curtain X′ runs and the shutter is then closed.
⑤ When the shutter is activated, sprocket gear Y turns clockwise to rotate activation lever A counterclockwise. The activation lever A is then stopped by start-stop lever B.
⑥ When A is activated, W turns to attract armature N of the 2 nd shutter curtain.

Fig. 7



(The illustration is designed for explanation only and is different from the actual parts)

Fig. 8

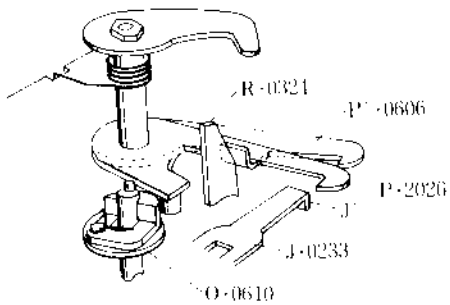


Fig. 9

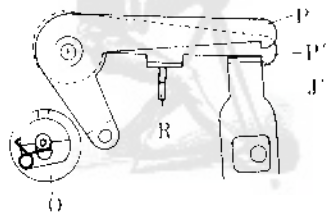
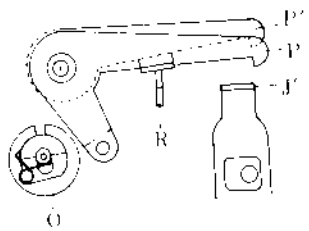


Fig. 10



C. Explanation of the Shutter Operation Sequence

Operation Sequence

Operations from Shutter Release Button, Presetting mechanism, SW (switches), Shutter Curtains and Braking mechanism to the Completion of Film Winding.

(1) On setting the shutter speed dial to "AUTO" or "MANUAL", the interlocking SW 8 and SW.9 change to the "AUTO" or "MANUAL" position.

2) On pressing the shutter button, SW 2 will change from "ON" to "OFF" and the F. P. synchro middle contact switch from "OFF" to "ON".

(3) SW. 5 changes from "OFF" to "ON". (magnet current)

(4) The clutch is removed, the stopper of the mirror mechanism is set free and presetting is carried out.

5) Immediately before the mirror is lifted, SW. 3 changes from "ON" to "OFF".

(6) The moment the mirror is the shutter release, the F. P. synchro middle contact switch is turned "ON".

(7) SW. 4 begins to operate and will change from "OFF" to "ON".

(8) The 1 st shutter curtain travels causing the braking device to operate.

(9) The "X" SW. is turned "ON".

(10) For "AUTO" or "MANUAL", time lag is carried out by the electronic circuit and for "X, B", control is performed by the mechanical operation.

(11) Magnet current is turned "OFF", the 2 nd shutter curtain runs and braking operation starts.

(12) The mirror is reset to its original position.

(13) The winding stop is set free.

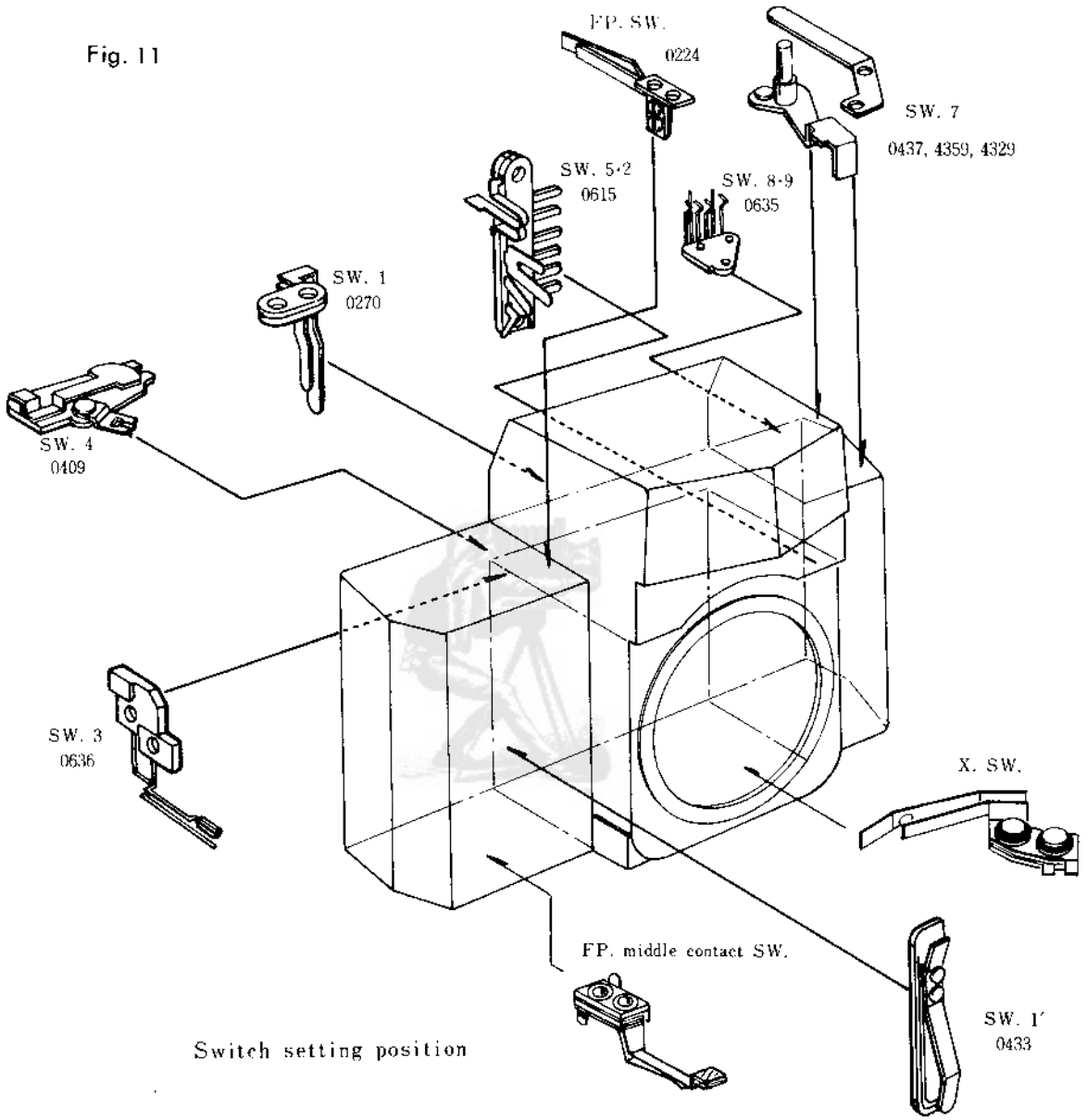
(14) After releasing the shutter button, the double exposure prevention is set free, SW 2 changes from "OFF" to "ON" and SW. 5 from "ON" to "OFF".

(15) The F. P. synchro middle contact switch changes from "ON" to "OFF".

(16) The clutch is held in place.

(17) Winding starts and then is completed.

Fig. 11



Switch setting position

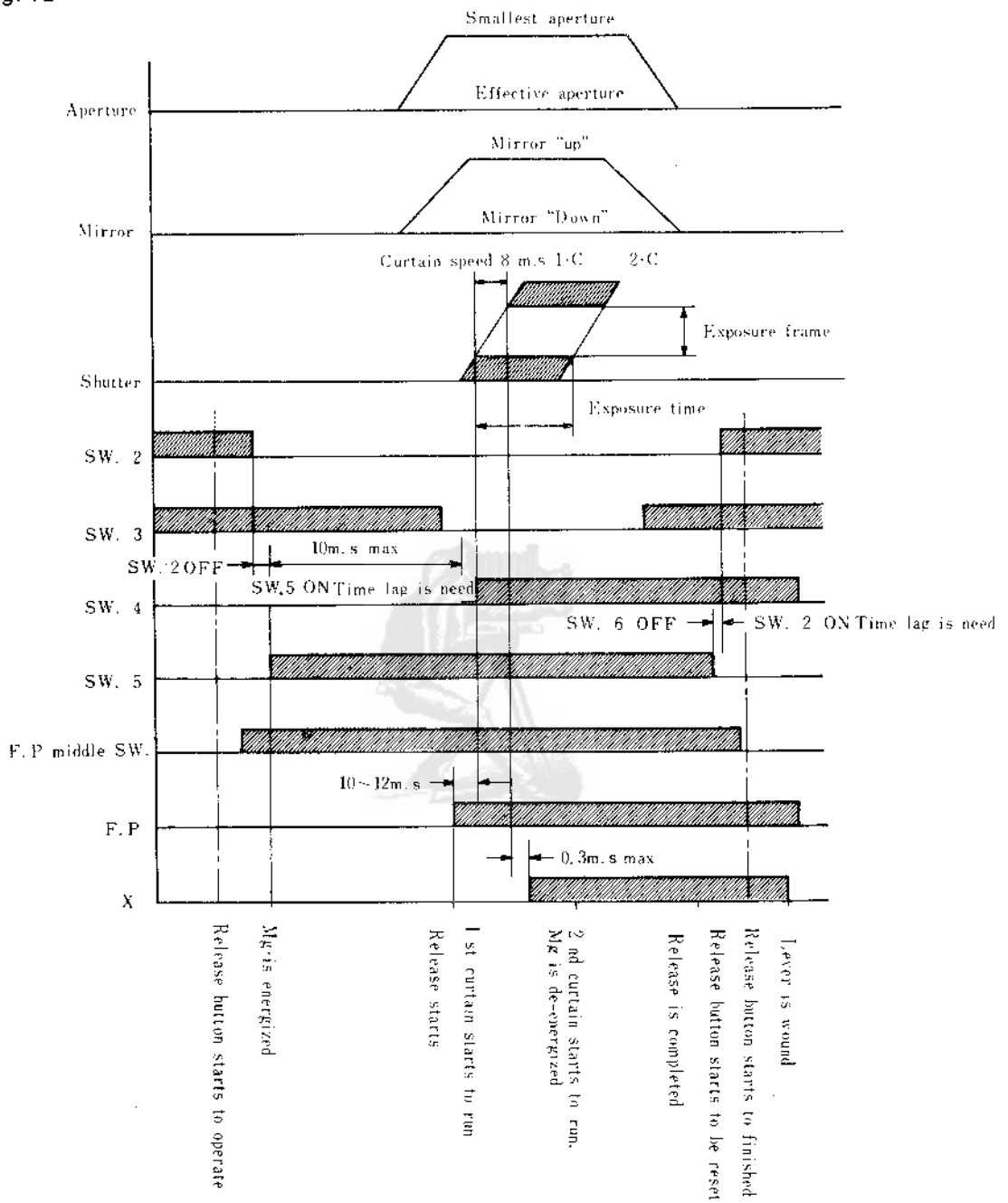
Operation Sequence of Each SW (switch)

Operation Sequence	SW.2	SW.3	SW.4	SW.5	"X" Contact	"F. P." Contact	"F. P." Middle Contact
(1) Winding started	ON	ON	ON	OFF	ON	ON	OFF
(2) Winding completed	ON	ON	OFF	OFF	OFF	OFF	OFF
(3) Release started (release button is pressed)	OFF	ON	OFF	ON	OFF	OFF	ON
(4) Shutter Operation	OFF ↓(1)	OFF ↓(2)	ON ↓(4)	ON ↓(2)	ON ↓(3)	ON ↓(2)	ON ↓(1)
(5) Release completed (release button is held)	OFF	OFF	ON	ON	ON	ON	ON
(6) Release completed (release button is released)	ON	ON	ON	OFF	ON	ON	OFF

Caution: The SW. 3 be related to the mirror operation

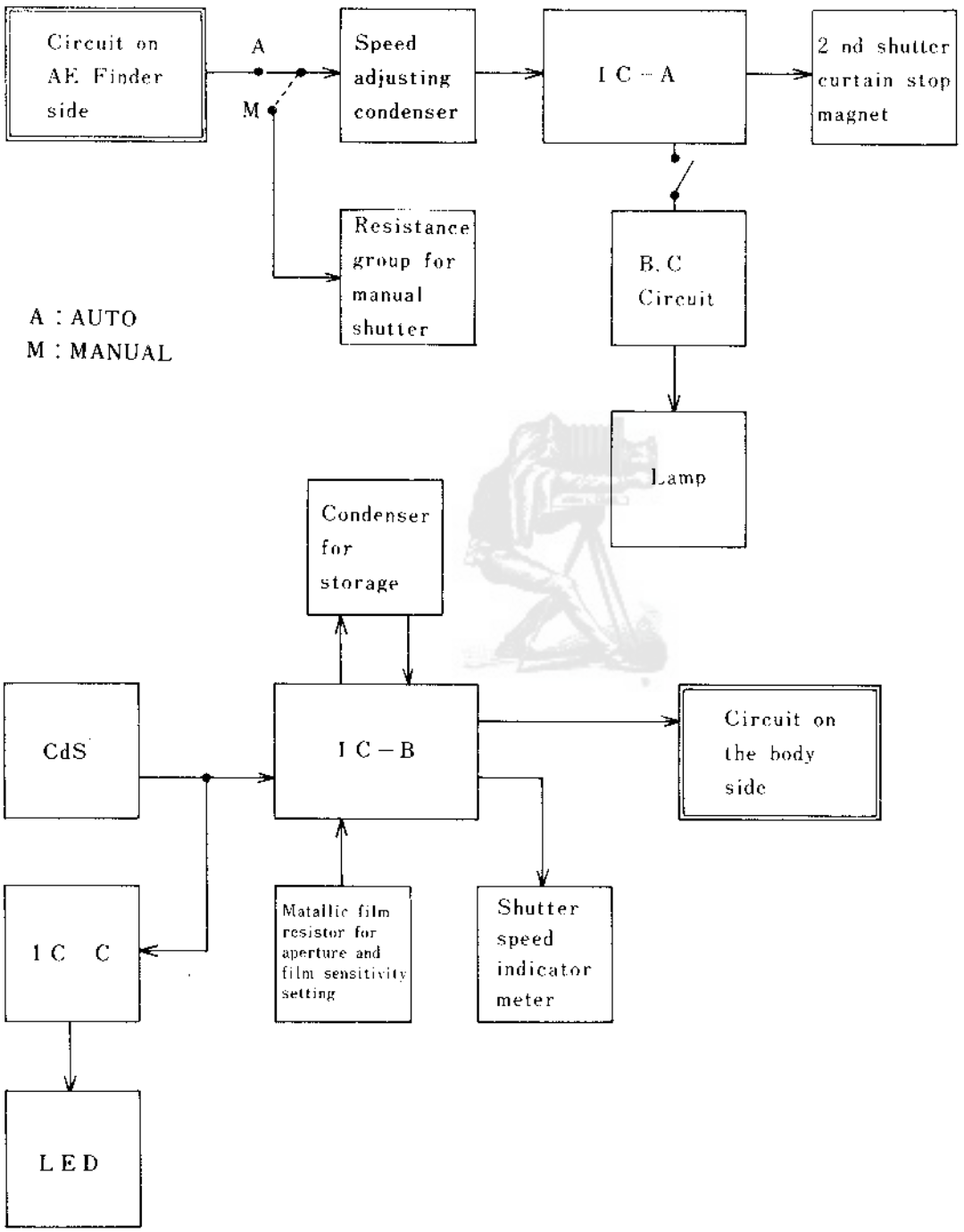
	Operation
SW. 1: Power switch for the plus side of the body.	• "MANUAL" (usually "OFF")
SW. 1′: Power switch for the plus side of the body. (8219-200 AE Finder)	• "MANUAL"
SW. 2: "AUTO" shutter speed memory when this switch is turned "OFF".	• Release button
SW. 3: C_3 discharge when this switch is turned "ON".	• 1 st shutter curtain begins to move.
SW. 4: Counting starts when this switch is turned "ON".	• 1 st shutter curtain begins to move.
SW. 5: Power switch fot the minus side of the body. The magnet attracts when this switch is turned "ON".	• Release button
SW. 6: Long exposure is set when this switch is turned "ON".	• "MANUAL"
SW. 7: B. C. (battery check) operates when this switch is turned "ON".	• "MANUAL"
SW. 8·9: Changing from "AUTO" to "MANUAL"	• This switch interlocks with the speed dial.

Fig. 12


Smallest aperture
Effective aperture
Aperture
Mirror "up"
Mirror "Down"
Mirror
Curtain speed 8 m.s 1·C 2·C
Exposure frame
Shutter
Exposure time
SW. 2
SW. 3
10m.s max
SW.2 OFF
SW.5 ON Time lag is need
SW. 4
SW. 6 OFF
SW. 2 ON Time lag is need
SW. 5
F.P middle SW.
10~12m.s
F.P
0.3m.s max
X
Release button starts to operate
Mg is energized
1st curtain starts to run
Release starts
2nd curtain starts to run.
Mg is de-energized
Release is completed
Release button starts to be reset
Release button starts to finished
Lever is wound

D. Explanation of the Electric Control Circuit

Fig. 13



1. Explanation of the Circuit on the AE Finder Side

① The circuit receives the light reflected by CdS from an object coming in through the lens and determines the resistance of CdS which is based on the brightness of the object.

② Resistance is determined by the metallic film resistor according to the preset film sensitivity (ASA) and the preset aperture through the MC coupling.

③ The current transmitted by the resistance value determined in paragraphs 1 and a above is converted into voltage which is passed to the condenser for storage.

④ The shutter speed for that moment is indicated in the finder by the pointer of the meter.

⑤ When an object is very dark, the light in LED goes out under the action of the low luminescence limit warning circuit, IC-C.

⑥ On pressing the shutter button, the mirror rises to shield the CdS from incident light. Therefore, the memory switch is operated just before the mirror rises in order to store the signal described in paragraph ③ above in the condenser.

⑦ When the 1 st shutter curtain starts to run, interlocking with the exposure control switch, the signal stored in the condenser is converted by IC-B into the control signal for the shutter speed.

⑧ The control signal is then conducted to the circuit on the body side to control the magnet which keeps the 2 nd shutter curtain from running. Then the 2 nd shutter curtain begins to travel.

2. Explanation of the Circuit on the Body Side

(1) Automatic (A) Operation

① When the 1 st shutter curtain begins to run, interlocking with the exposure control switch, the circuit conducts the control signal from the circuit on the AE finder side to the speed adjusting condenser.

② The signal is then transmitted from the speed adjusting condenser to IC-A. When the signal reaches the specific size, another signal is produced from the IC-A.

③ The signal produced in paragraph ② above controls the magnet which prevents the running of the 2 nd shutter curtain, causing the 2 nd curtain to travel to control exposure time.

(2) Manual (M) Operation

① When the speed dial is set at any speed other than "AUTO" ranging from 1 to 1/2000 sec., the (A)-(M) changing switch is positioned at "M" and the shutter speed is determined by the resistance group for the manual shutter and the speed adjusting condenser.

The signal is transmitted to IC-A to control the magnet which prevents the 2 nd shutter curtain from running, thus controlling exposure time, as described in paragraph (1)-③ above.

② Even for long exposure (2 to 16 seconds), the shutter speed is determined by resistance value and the condenser.

E. Explanation of the Shutter Speed Control Device

Operation: On turning the shutter speed dial, the brush provided under the dial comes in contact with contacts a through O as shown in Fig. 14, as it is rotated.
The shutter speed for manual photography is available in the space between contacts b and m. As shown in Fig. 15, each shutter speed is determined by the composite resistor.

1/2000sec. R_{2000}.
1/1000sec. $R_{2000} + R_{1000}$.
1/500sec. $R_{2000} + R_{1000} + R_{500}$.
1/250sec. $R_{2000} + R_{1000} + R_{500} + R_{250}$.
1/125sec. $R_{2000} + R_{1000} + R_{500} + R_{250} + R_{125}$.
1/60sec. $R_{2000} + R_{1000} + R_{500} + R_{250} + R_{125} + R_{60}$.
1/30sec. $R_{2000} + R_{1000} + R_{500} + R_{250} + R_{125} + R_{60} + R_{30}$.
1/15sec. $R_{2000} + R_{1000} + R_{500} + R_{250} + R_{125} + R_{60} + R_{30} + R_{15}$.
1/8sec. $R_{2000} + R_{1000} + R_{500} + R_{250} + R_{125} + R_{60} + R_{30} + R_{15} + R_8$.
1/4sec. $R_{2000} + R_{1000} + R_{500} + R_{250} + R_{125} + R_{60} + R_{30} + R_{15} + R_8 + R_4$.
1/2sec. $R_{2000} + R_{1000} + R_{500} + R_{250} + R_{125} + R_{60} + R_{30} + R_{15} + R_8 + R_4 + R_2$.
1sec. $R_{2000} + R_{1000} + R_{500} + R_{250} + R_{125} + R_{60} + R_{30} + R_{15} + R_8 + R_4 + R_2 + R_1$.

Fig. 15

Contact	Shutter speeds
a	AUTO
b	1/2000 sec.
c	1/1000 sec.
d	1/500 sec.
e	1/250 sec.
f	1/125 sec.
g	1/60 sec.
h	1/30 sec.
i	1/15 sec.
j	1/8 sec.
k	1/4 sec.
l	1/2 sec.
m	1 sec.
n	B
o	X

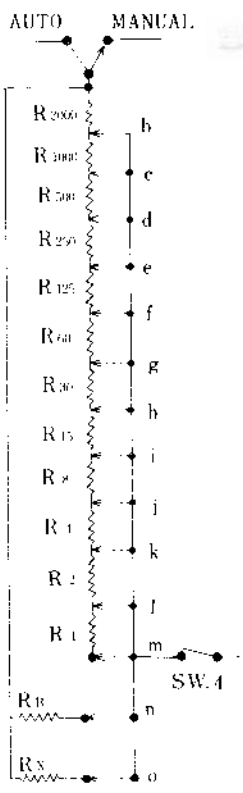
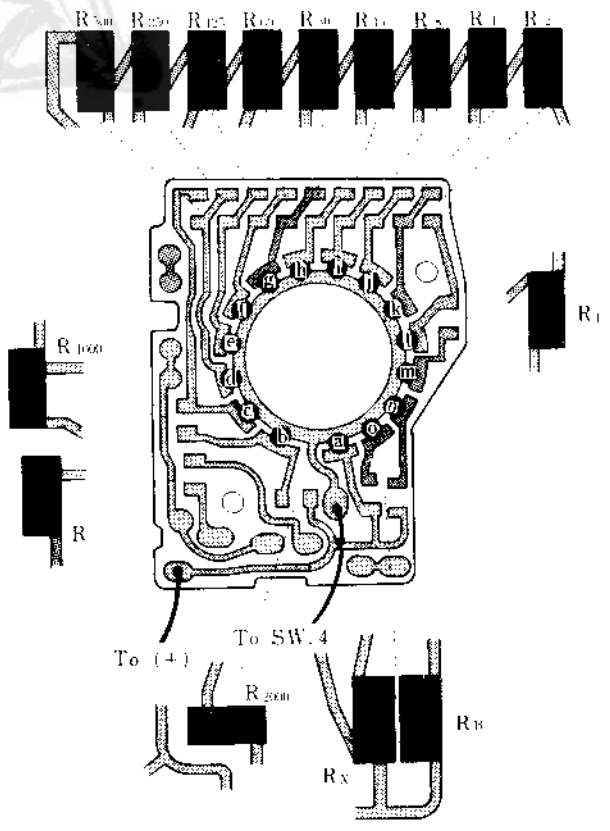


Fig. 14



F. Explanation of the Rewinding Operation and Resetting

Operation

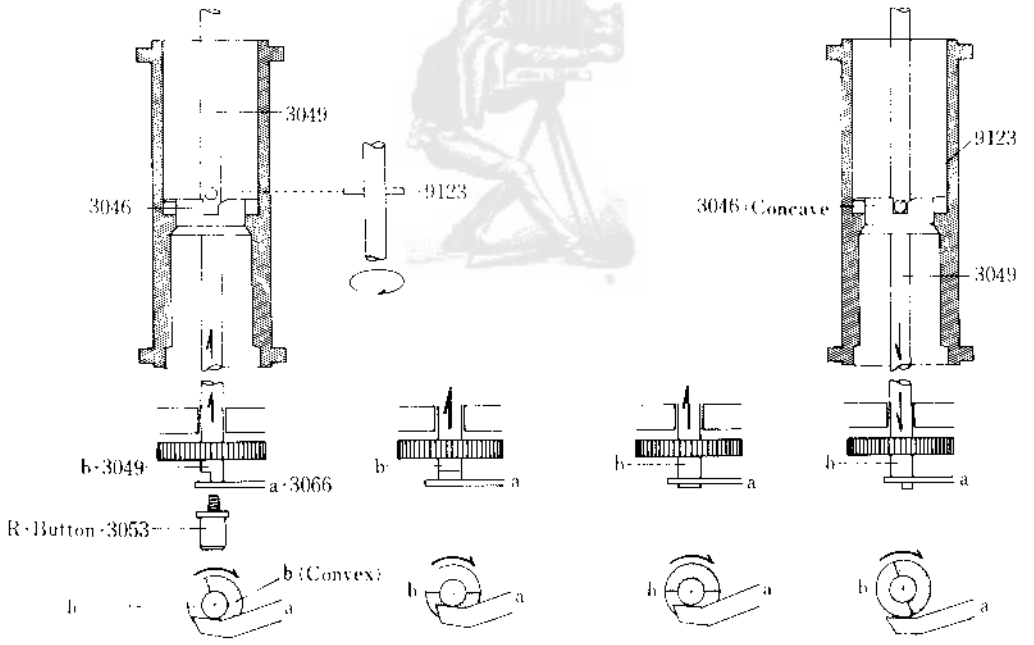
(1) On pressing the rewinding button R (3053), shaft b (3049) connected with the button moves in the direction of the arrow. Lever a (3066) climbs over shaft b.
When 9123 is removed from the concave of sprocket (3046), the sprocket runs idle.

(2) When winding starts, shaft b rotates in the direction of the arrow.

(3) As shaft b makes nearly a turn, its convex presses lever a down.

(4) As shaft b continues to turn, its convex moves 3049 in the direction of the arrow, causing 9123 to fit into the concave of 3046 to remove lever a from the shaft to reset it to the original position.

Fig. 16



(1) Rewinding (2) Winding starts (3) Makes nearly a turn (4) Original position

G. Explanation of the Multi-Exposure Device

Operation

(1) ① On depressing the rewinding button (R), the shaft b (3049) upper.
(See page. Explanation of the Rewinding operation and Resetting)

② Lever a (3066) mounts the shaft and operates in the direction of the arrow.

③ Levers a and c (0392) are out of contact.

④ Lever c is always operated by the spring in the direction of the arrow to engage with the ratchet nail (0392) to prevent the rotation shown by the arrow.

⑤ Lever c (0392) engages with the spool (0334) connected with it and prevents the latter from turning in the direction of the arrow.

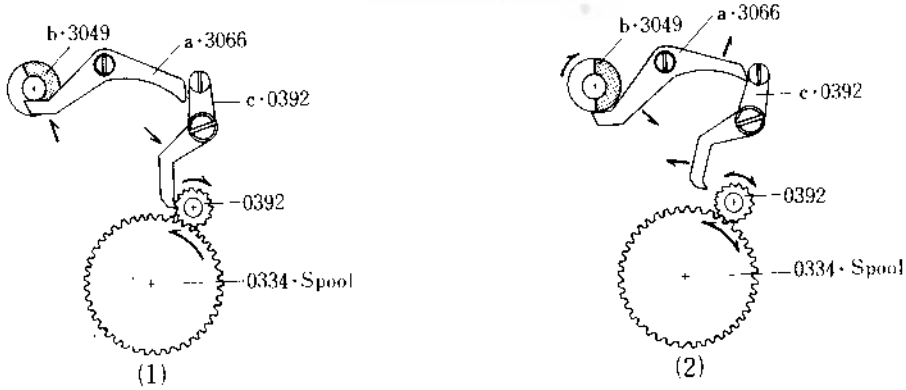
⑥ The sprocket shaft (3049) and the spool (0334) are winding completely separated, and when winding is carried out, the sprocket shaft idles with the spool remaining unmoved. This results in the film remaining in same position.

(2) ① As a result of multi-exposure, shaft b makes a turn to wind another frame of film, removing the lever a from the mount. The lever a is then operated in the direction of the arrow, thus coming into contact with the lever c.

② Lever c is separated from the ratchet nail (0392).

③ The spool (0334) and the ratchet nail Lever c (0392) rotate freely to be reset to their original positions.

Fig. 17



H. Explanation of the Magnet (Mg)

Operation

Weak current is used for the attraction of the magnet (Mg) and the operation device is mechanically attracted to the magnet beforehand. Therefore, the control circuit is designed to remove the attraction of the magnet to the device for the "ON" and "OFF" operations of the Mg.

◎ When the magnet is removed, electromotive force instantaneously occurs to the magnet coil. The condenser in the circuit diagram is used to prevent counter electromotive force.

Precautionary Measures for Handling

Be sure that the attraction surface of the magnet is free from scratches, dust, dirt or oil. Also, do not hit or drop the attraction surface of the magnet.

◎ The attraction surface of the magnet, made of crystallized metal (alloy) and specially heat treated, deteriorates (decrease in attraction) when it is struck, as its crystallization breaks.

◎ Dust, dirt or oil on the attraction surface of the magnet cause the stability of the shutter speed to deteriorate.

Fig. 18

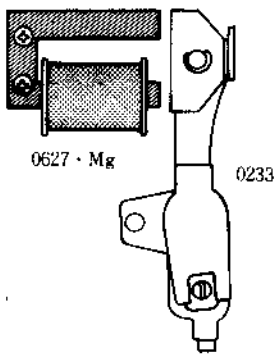
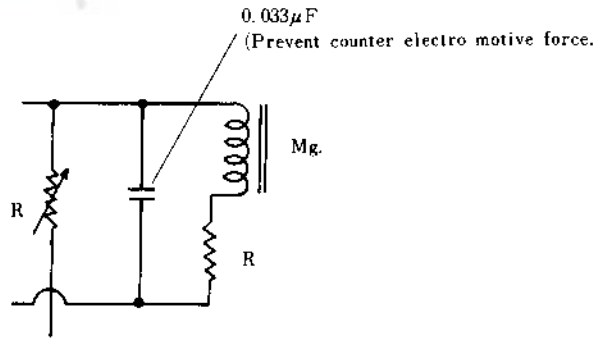


Fig. 19



I. Explanation of the Long Exposure Changing Mechanism

Operation

When 4224 (part No. 0103) is pressed in the direction of the arrow in Fig. 21 and is manually turned 15° counterclockwise, 4223 (part No. 0629) and 4302 (part No. 0631) rotate 23° counterclockwise.

4224 and 4302 rotate on C 1 and C 2, respectively.

4326 (resistance base plate) is attached to the lower part of 4302, and its resistance value for 1, 1/2, 1/4 and 1/8 second is charged with the condenser of C 3′ when SW. 6 (parts Nos. 0414 and 0417) is turned "ON".

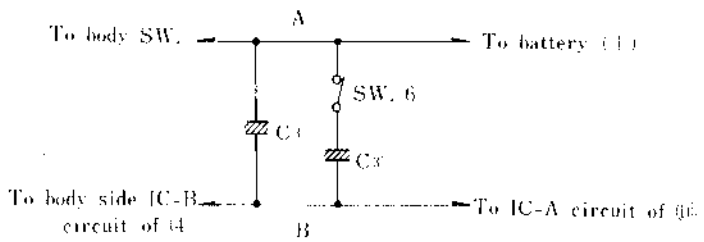
Therefore, long exposures of 16, 8, 4 or 2 seconds are available by the combination of resistance (R) and condenser (C).

◎ SW. 6 is turned "ON" by 2008 (R. SW. cam) only when the shutter speed dial is set to "B".

Principles

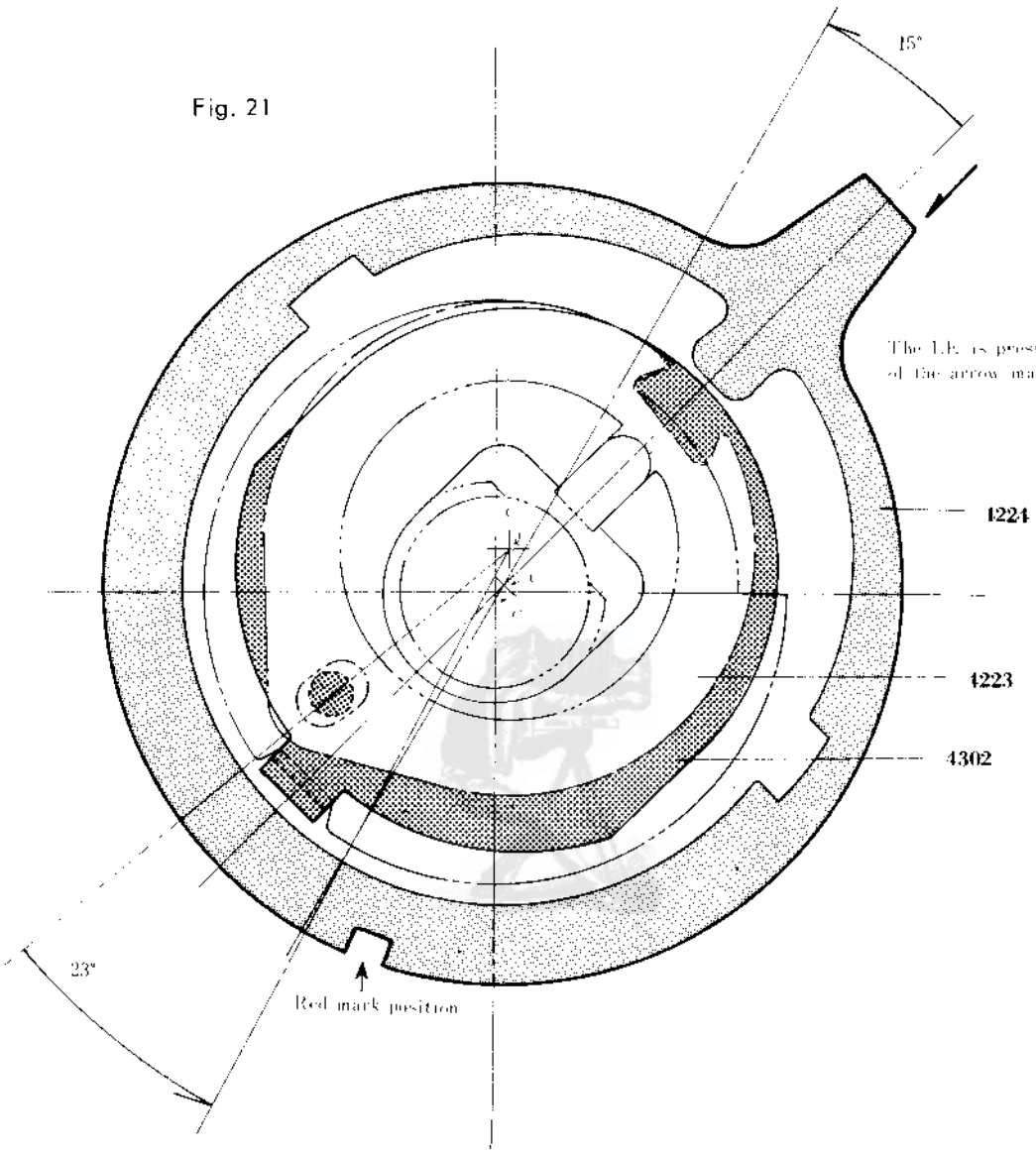
When SW. 6 is turned "ON" by 2008, C 3 and C 3′ are parallel, causing the condenser capacity between A and B to be 16 times that of C 3. Therefore, the charging time of C 3 and C 3′ becomes 16 times longer only for C 3 by rotating the LE lever.

Fig. 20



(Capacity of C 3′ is 15 times that of C 3.)

Fig. 21



Note

(1) When 4224 rotates 15° on the axis C_1, 4223 and 4302 turn 23° on the axis C_2.

J. Explanation of the Shutter Curtain Braking Operation and Shutter Operation Device for Battery

Operation Principle 1

① Fig. 22 indicates the positions the shutter curtains, their interlocking gears and brakes when the winding of film has been completed. Gears, 0293 and 0298, are seen as a single gear in the plan as they are one above the other on the same shaft. (Fig. 22-A)

② On pressing the shutter release button, the first shutter curtain begins to move. The gear (0293) interlocking with the first shutter curtain turns in the direction shown by the arrow in Fig. 23.

③ The self-locking rivet of the gear (0293) contacts the brake lever (0612) to turn it counterclockwise, causing it to engage the braking device. The brake lever stops when it reaches the stopper, permitting the braking device to operate.

④ When turning counterclockwise, the brake lever (0612) comes in contact with the axis, 0613, which also turns counterclockwise.

⑤ When the electronic control circuit operates to start the 2 nd shutter curtain after the Mg (OFF), the gear (0298) interlocked with the movement of the 2 nd shutter curtain rotates in the direction shown by the arrow in Fig. 24. The gear (0298) contacts the brake lever (0613) with the projection to turn it counterclockwise, permitting it to engage the braking device. Thus, the braking operation by the 2 nd shutter curtain.

Operation Principle 2

① If the battery is dead, the 1 st shutter curtain operates correctly, but the magnet control be insufficient. Since the Mg which controls the 2 nd shutter curtain does not operate, the 2 nd shutter curtain moves immediately after the 1 st shutter curtain has traveled. (The 1 st and 2 nd shutter curtain moves together)

② Since 0293 (rivet) and 0298 (projection) oppose 0612 and 0613 simultaneously as shown in Fig. 25, the operation of 0613 stops halfway. In other words, because the operation of 0613 (axis) is stopped although it usually moves to the position shown by the arrow in Fig. 26, the lever (2516) does not rotate counterclockwise, nor is the connection between 0353 and the winding stop plate released.
This makes it impossible to wind the next frame of film.

③ When the battery cover (0402) is moved to the 0 (Open) position to turn in the direction shown by the arrow in Fig. 27, it a counter clockwise rotation of 0352 and 0357 to permit connection A to break, resulting in a counterclockwise rotation of 2516.

④ 0220 is forced by 2517 to turn clockwise, causing 0622 to rotate clockwise by the interlocking lever and 0353 to be released. This makes it possible to wind the next frame of film.

Fig. 22-A

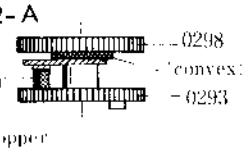


Fig. 22

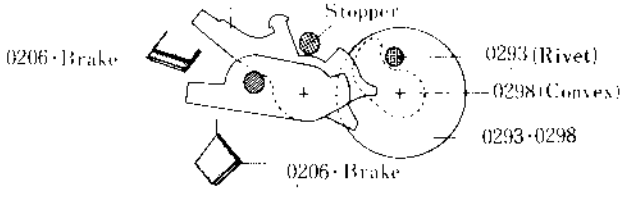


Fig. 23

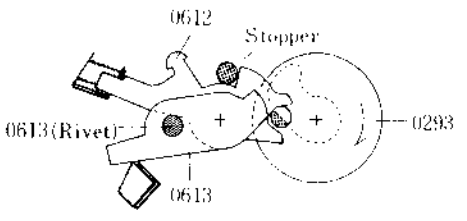
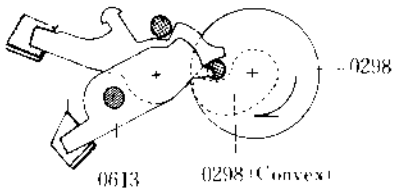
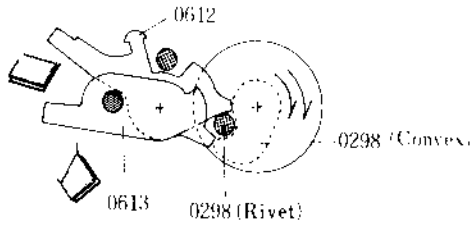


Fig. 24



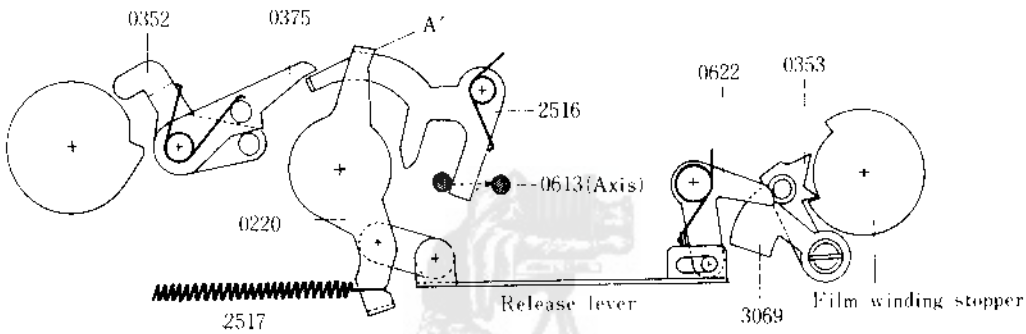
After the 2nd shutter curtain has traveled

Fig. 25



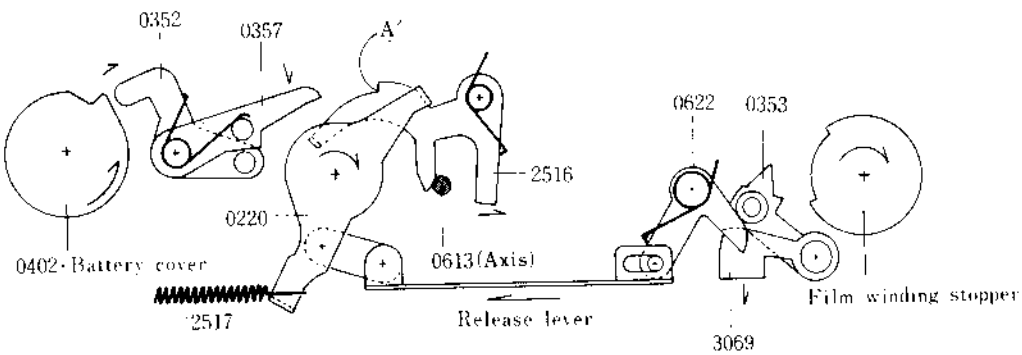
The 1st and 2nd shutter curtain moves together

Fig. 26



The winding of film has been completed

Fig. 27



The battery cover is moved to the O position to turn, it possible to wind the next frame of film.

K. Explanation of Silver-Oxide Battery

The silver-oxide battery utilizes silver oxide for the anode, zinc for the cathode and alkali aqueous solution for electrolyte. It is a compect, closed type primary battery, no larger in size than a compact mercury battery.

Compactness and high-performance are required for batteries. To meet this need, silver-oxide batteries are used as the power source for the electronic shutter which needs batteries smaller in size and higher in output than mercury batteries.

Type: JIS G-13 (Nominal Voltage: 1.50V)

- S-76 (Eveready, USA)
  (Yuasa Eveready, Japan)
- RS-76S (Leopack, USA)
- MS-76 (Mallory, Germany)

Features:

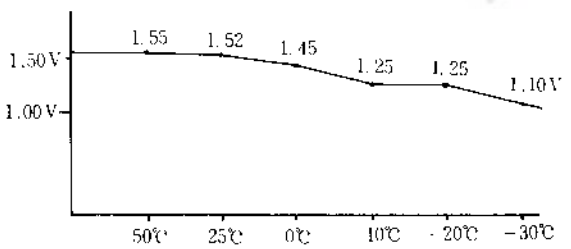
① The working voltage is higher than that of mercury battery (1.2V) and compact design is ideal for carrying.

② The change in internal resistance is minimized and the discharge voltage curve is average.

(3) The low temperature performance characteristics are exvellent ranging.

④ The silver-oxide battery has a larger capacity than the mercury battery.

Fig. 28



Temperature performance characteristics

L. Explanation of the Battery Check Circuit

○This circuit is designed to check the basic capacity of silver-oxide batteries.

○B. C. Lamp Lighting Voltage: 2.0 ± 0.1V Min.

Operation: The B. C. switch (SW. 7) is turned on.

(1) When E is 2.0V or more;

When V_{BE} (base emitter voltage) of transistor Q_0 exceeds a specific value, the base of Q_0 is energized to operate the transistor. The transistor operates to transmit current from the collector (C) and emitter (E), causing the B. C. lamp to light.

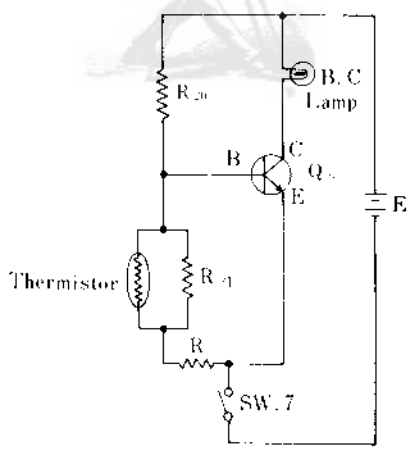
(2) When E is less than 2.0V;

When V_{BE} (base emitter voltage) of transistor Q_0 declines below a specific value, the base of Q_0 is de-energized, causing the transistor to be in-operative.

Since the transistor is not energized, current is not transmitted from the collector (C) to emitter (E), causing the B. C. lamp to remain unlighted.

○ Thermistor: Temperature compensating circuit (temperature rise causes resistance to be small.)

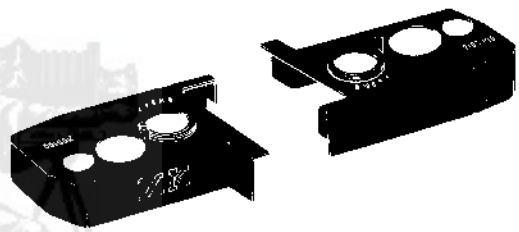
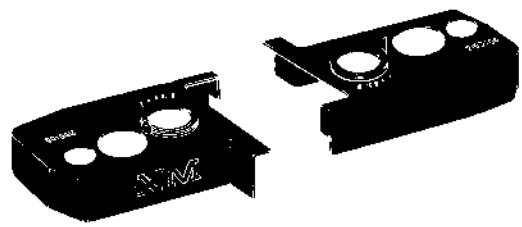
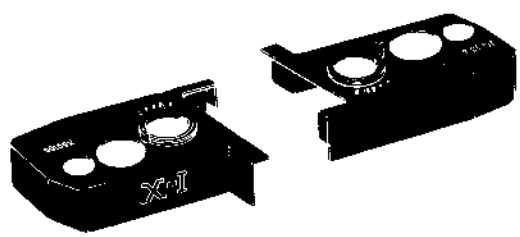
Fig. 29



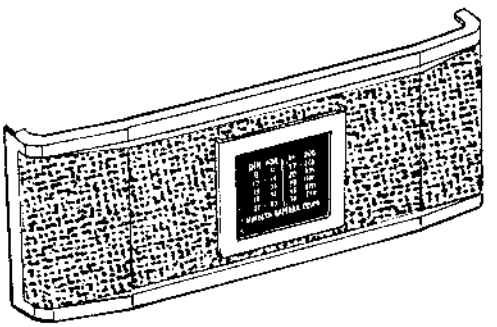
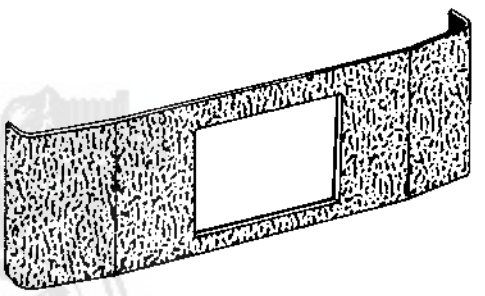
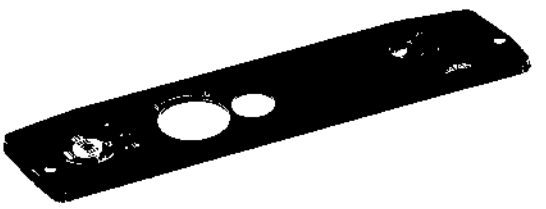
MINOLTA XK (2001-200)
New Type MINOLTA XM(2001-400) PARTS LIST
MINOLTA X-1(2001-600)

1. This parts list comprises exclusive parts for the 2001 series.
Please use the parts list of 054, 058, and 062 for all other parts unlisted here, because they are common to 054, 058, and 062, respectively.

1. この部品表は2001系専用部品のみをまとめたものです。
この部品表以外の部品については054, 058, 062と共通ですので054, 058, 062パーツリストをご利用下さい。

Parts No. & Part Name 部番及び名称	Sketch 略図	Unit 員数
2001-0132-01 Top cover right set 上カバー右セット		1
2001-0134-01 Top cover right set 上カバー右セット		1
2001-0136-01 Top cover right set 上カバー右セット		1

〔2001〕

Part No. & Part Name 部番及び名称	Sketch 略図	Unit 員数
2001-0101-01 Back cover set **裏蓋セット**		1
(**2001-0101**) 2001-1118-01 Back cover leather 裏蓋貼皮		1
2001-0105-01 Bottom cover set 下カバーセット		1

LIST FOR MODIFIED PARTS FOR 054, 058 AND 062

054, 058, 062変更部品一覧表

This list shows parts modified in the period between the date of issue of the service manual and December 1973.

Those parts are arranged in the order of the page number of the Parts List.

When you place order referring to this list, make sure that you will not mix up the new

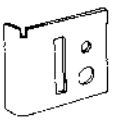
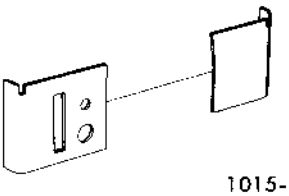
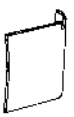
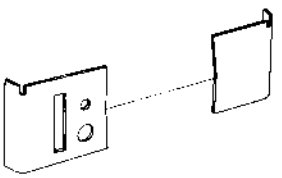
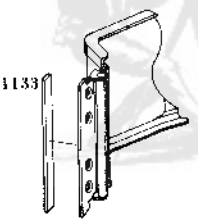
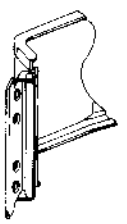
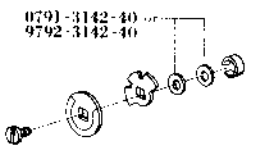
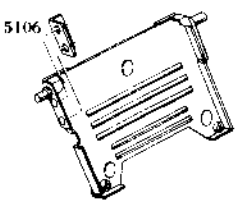
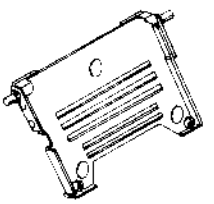
As to assembly instruction for the parts whose number is marked with a star among those new parts, see page 10 of this list.

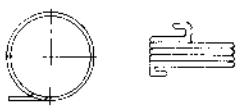
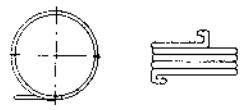
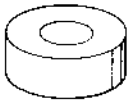
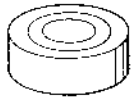
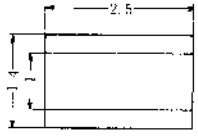
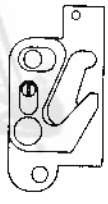
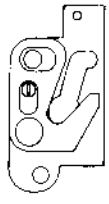
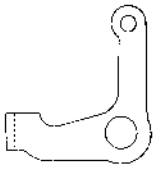
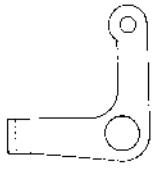
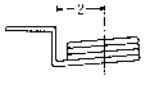
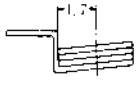
This modified parts list file to the behind of 054, 058 and 062 parts list.

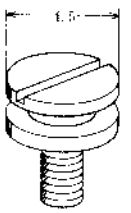
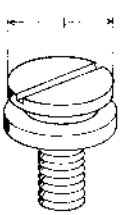
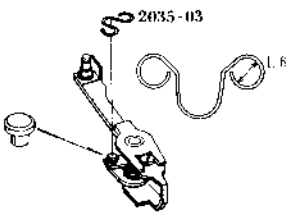
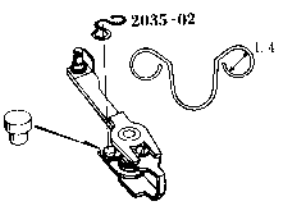
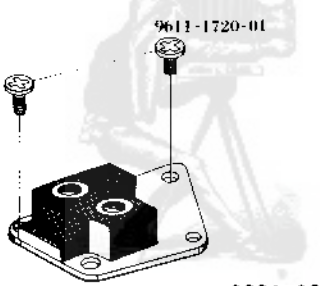
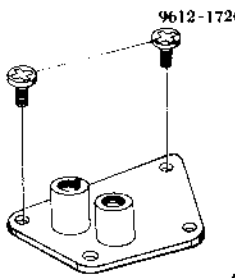
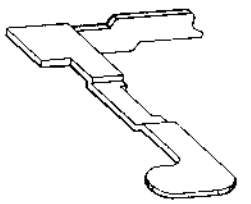
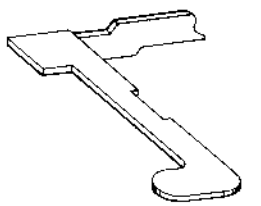
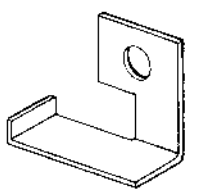
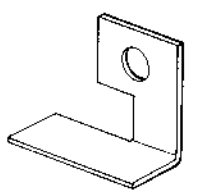
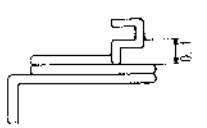
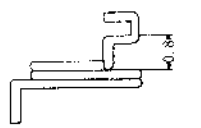
この一覧表はサービスマニュアル発行時より現在（1973年・12月）までに変更のあった部品についての一覧表でパーツリストのページ順に記載されております。この一覧表に記載されている部品を注文の際は特に新・旧にご注意の上（取付かない場合もありますので）間違いのないようにお願いいたします。

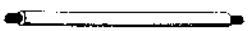
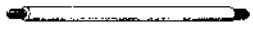
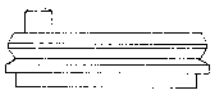
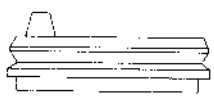
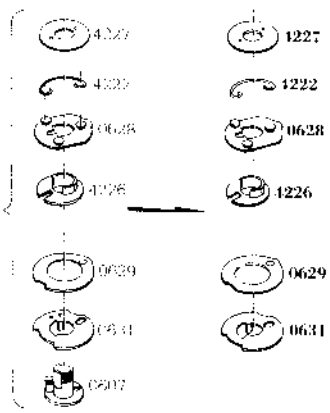
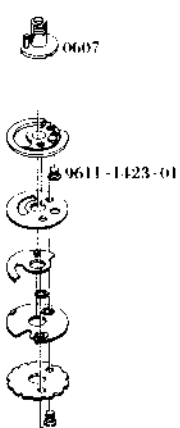
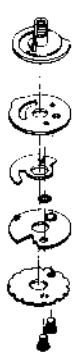
又、新設部品のうちで図解欄の部品番号の前に☆マークがついている部品に関しての組込方法については10ページをご参照下さい。

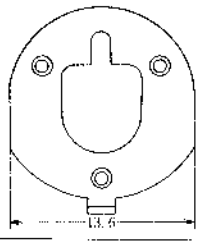
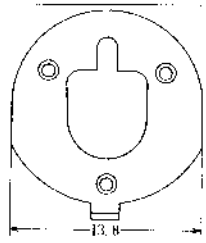
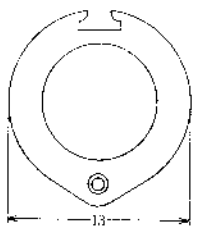
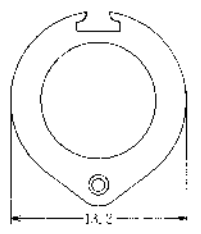
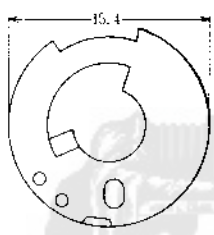
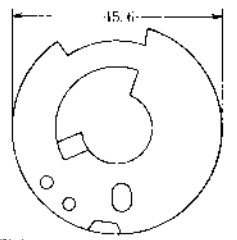
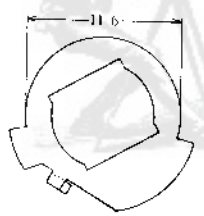
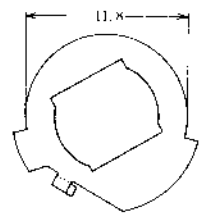
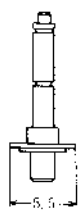
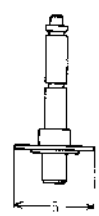
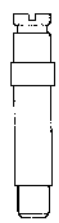
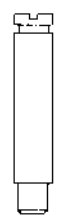
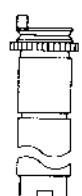
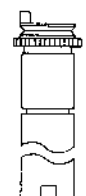
尚、この部品一覧表はパーツリストの後にはめ込んでご使用下さい。

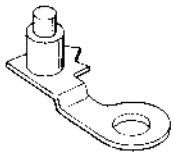
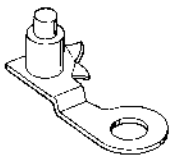
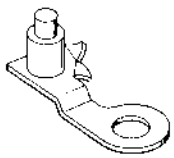
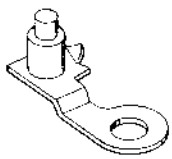
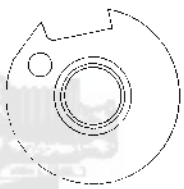
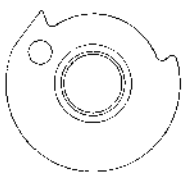
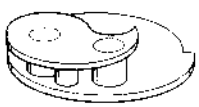
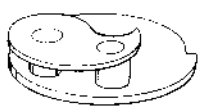
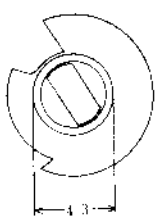
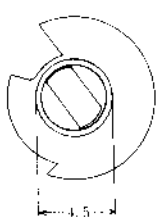
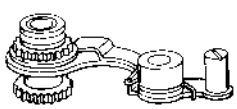
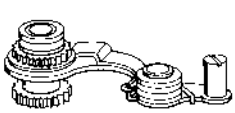
rts No., Parts Name and Change contents 部品番号・部品名称・変更内容	New Type Parts 新　部　品	Old Type Parts 旧　部　品
4-1015-02 (Page. 3) Body leather-Right ボデー貼皮右 Parts No. separation 部品番号分離	 1015-02	 1015-01
4-1023-01 (Page. 3) Body leather-Left ボデー貼皮左 Parts No. separation 部品番号分離	 1023-01	 1015-01
4-9129-01 (Page. 3) Front frame set screw 前枠押えビス Screw type change プラスねじに変更	 9129-02	 9129-01
4-1133-01 (Page. 5) Light shield sheet ヒンジ遮光シート New addition 新設（単体供給可能）	 1133-01 (0101-02)	 0101-01
91-3142-40 (Page. 6) 92-3142-40 Washer (For adjustment) 薄ワッシャー（調整用） New addition 新　設	 Unit: 0～2 個数：0～2	
4-5106-01 (Page. 7) Mirror holder shield plate ミラーホルダー遮光板 Addition coupled element 結合内容の追加(単体供給可能)	 0639-02 5106-01	 0639-01
4-0643-02 (Page. 7) Mirror guide plate-B set ミラーガイド板Bセット Change in shape		

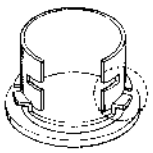
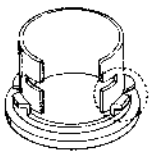
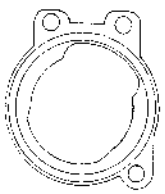
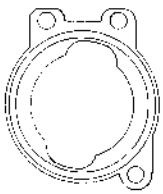
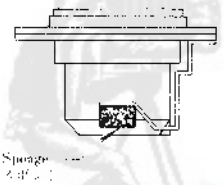
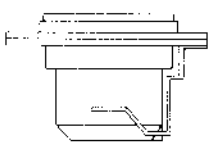
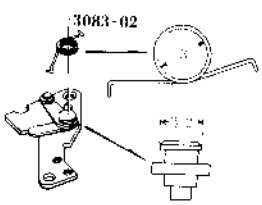
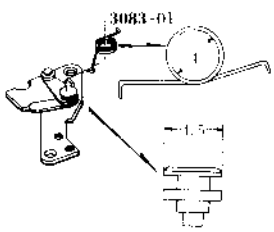
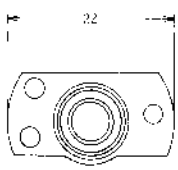
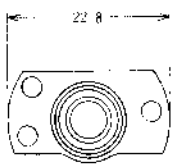
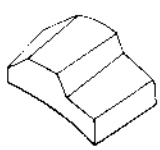
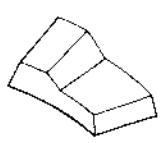
Parts No., Parts Name and Change contents 部品番号・部品名称・変更内容	New Type Parts 新　部　品	Old Type Parts 旧　部　品
054-5172-02 (Page. 7) Mirror return spring ミラー復帰スプリング Change in angle of the spring 巻数変更	 5172-02	 5172-
054-9420-02 (Page. 7) Shield guide collor シールドガイドカラー Change from coupled parts to simple parts 結合部品より単体部品に移行	 9420-02	Discontinue: 廃止  0660-
054-4310-03 (Page. 8) Switch 4 isolation tube スイッチ4絶縁チューブ Change of parts No. and parts name 4305-01廃止による部品番号，名称変更	 4310-03	Discontinue: 廃止  4305-01(Switch-2.5 isolationtu (スイッチ2.5絶縁チュー
054-0642-02 (Page. 8) Mirror guide plate-A set ミラーガイドプレートAセット Change in shape 形状変更	 0642-02	 0642-
054-0634-02 (Page. 9) Switch-2, -5 release lever set スイッチ2、5連動レバーセット Change in shape 形状変更	 0634-02	 0634-
054-4322-02 (Page. 9) Switch-2, -5 release lever spring スイッチ2、5連動レバースプリング Change in dimention 寸法変更	 4332-02	 4332
054-1111-02 (Page. 10) Lock plate ロック板 Material change 材質変更		1111-02: Stic to magne 磁石に吸い着く 1111-01: Unstic to mag 磁石に吸い着か

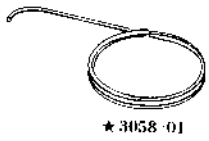
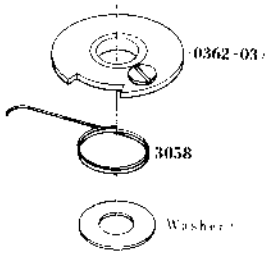
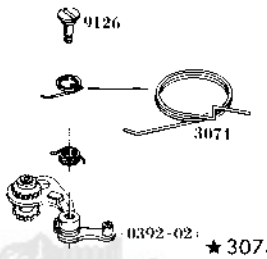
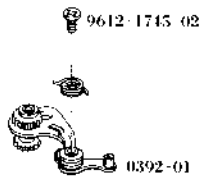
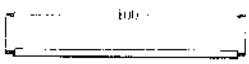
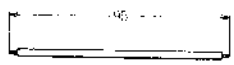
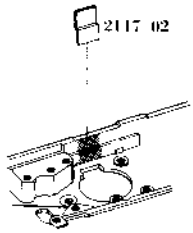
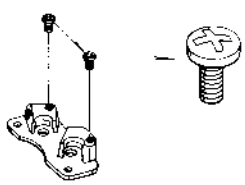
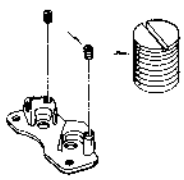
rts No., Parts Name and Change contents 部品番号・部品名称・変更内容	New Type Parts 新　部　品	Old Type Parts 旧　部　品
4-9008-02 (Page. 10) Penta lock lever axis ペンタロック解除レバー軸 Change in dimension 寸法変更	 9008-02	 9008-01
4-0233-02 (Page. 11) Over charge lever-A set オーバーチャージレバーAセット 4-2035-03 Over charge spring オーバーチャージスプリング Change in dimention 寸法変更	 0233-02 2035-03	 0233-01 2035-02
4-0236-02 (Page. 11) Idle gear base set アイドルギヤー台板セット 11-1720-01 Phillips type screw 十字穴付きなべ小ねじ Change in shape 形状変更	 0236-02 9611-1720-01	 0236-01 9612-1720-01
4-0434-81 (Page. 11) A-M Switch operation lever A-Mスイッチ連動レバー Change in shape 形状変更	 0434-81	 0434-01
4-4323-02 (Page. 11) Cord pressure-A 巻上側コード押えA Change in shape 形状変更	 4323-02	 4323-01
4-4339-02 (Page. 11) A-M Switch spring A-Mスイッチスプリング Change in dimention 寸法変更		

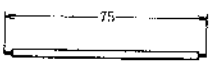
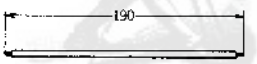
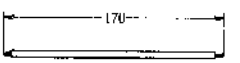
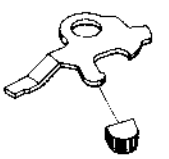
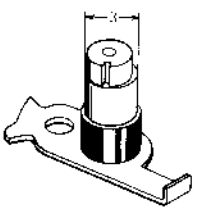
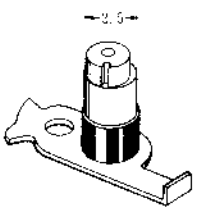
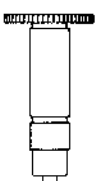
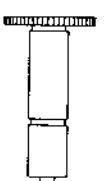
Parts No., Parts Name and Change contents 部品番号・部品名称・変更内容	New Type Parts 新　部　品	Old Type Parts 旧　部　品
054-4370-02 (Page. 11) Lead wire-Ⅰ リード線Ⅰ Color change 色変更	 Color: Brown 色：茶 4370-02	 Color: Red 色：赤 4370-0
054-0210-03 (Page. 12) Speed dial operation ring set スピードダイヤル連動環 Change in dimention 寸法変更	 0210-03	 0210-0
054-0210-02 (Page. 12) Speed dial operation ring set スピードダイヤル連動環 Change in shape 形状変更	 0210-02	 0210-0
054-0290-01 (Page. 12) Speed dial set スピードダイヤルセット Modification the simple parts from the coupled parts. 結合部品より単体供給部品に移行	 0290-01 Part 0607 is assemble of part 0291 0607は0291の結合部品になる（単体供給可能）	
054-0291-02 (Page. 12) Shutter base plate-A set シャッター台板Aセット Addition coupled elements (0607 and 9611-1423-02) 結合内容の追加 (0607及び9611-1423-01)	 0607 9611-1423-01	

Parts No., Parts Name and Change contents 部品番号・部品名称・変更内容	New Type Parts 新　部　品	Old Type Parts 旧　部　品
054-0628-02 (Page. 12) L. E Clutch L. Eクラッチ Change in dimention 寸法変更	 0628-02	 0628-01
054-0629-02 (Page. 12) L. E Operation plate L. E操作板 Change in dimention 寸法変更	 0629-02	 0629-01
054-0631-02 (Page. 12) Brush 摺動ブラシ Change in dimention 寸法変更	 0631-02	 0631-01
054-3018-02 (Page. 12) Winding lever limit plate 巻上げレバー制限板 Change in dimention 寸法変更	 3018-02 (0620-02)	 3018-01 (0620-01)
054-2081-02 (Page. 13) Stop lever axis 係止レバー軸 Change in dimention 寸法変更	 2081-02 (0247-02)	 2081-01 (0247-01)
054-2024-81 (Page. 13) Spring hanger-A スプリング掛けA Change in shape 形状変更	 2024-81	 2024-01
054-3006-05 (Page. 13) Sprocket gear upper side スプロケットギヤー上 Change in shape 形状変更		

Parts No., Parts Name and Change contents 部品番号・部品名称・変更内容	New Type Parts 新　部　品	Old Type Parts 旧　部　品
054-0353-03 (Page. 14) Winding stop lever set 巻上げ係止レバーセット Change in shape and dimention 形状及び寸法変更	 0353-03	 0353-(
054-0353-02 (Page. 14) Winding stop lever set 巻上げ係止レバーセット Change in shape 形状変更	 0353-02	 0353-(
054-0362-03 (Page. 14) S. button cam S 釦解除カム Change in shape 形状変更	 0362-03	 0362-(
054-0362-02 (Page. 14) S. button cam S 釦解除カム Change in dimention 寸法変更	 0362-02	 0362-(
054-0388-03 (Page. 14) Winding stopper plate set 巻上げ係止板セット Addition coupled element 結合内容の追加（単体供給不可能）	 0388-03	 0388-(
054-0388-02 (Page. 14) Winding stopper plate set 巻上係止板セット Change in dimention 寸法変更	 0388-02	 0388-(
054-0392-02 (Page. 14) Spool lock plate set スプールロック台板セット Change in shape 形状変更		

Parts No., Parts Name and Change contents 部品番号・部品名称・変更内容	New Type Parts 新　部　品	Old Type Parts 旧　部　品
054-0402-02 (Page. 14) Battery case cap set 電池ケース蓋セット Change in shape 形状変更	 0402-02	 0402-01
054-0406-03 (Page. 14) Battery case-A set 電池ケースAセット Change in shape 形状変更	 0406-03	 0406-02
054-0406-02 (Page. 14) Battery case-A set 電池ケースAセット Addition coupled element 結合内容の追加（単体供給不可能）	 0406-02	 0406-01
054-0622-02 (Page. 14) Release stop base plate set 二重押し防止台板セット 054-3083-02 Winding release spring 巻上げ解除スプリング Change in dimention 寸法変更	 0622-02 3083-02	 0622-01 3083-01
054-1013-03 (Page. 14) Tripod socket 三脚ねじ Change in dimention 寸法変更	 1013-03	 1013-02
054-2107-02, (Page. 14) Brake rubber-B ブレーキばね用ゴムB Change in shape 形状変更	 2107-02	 2107-01

Parts No., Parts Name and Change contents 部品番号・部品名称・変更内容	New Type Parts 新　部　品	Old Type Parts 旧　部　品
054-3058-01 (Page. 14) S. button cam return spring S釦カム戻しスプリング New addition 新　設	 ★3058-01	 0362-03 3058 Washer
054-3074-02 (Page. 14) Spool axis return spring スプール軸戻しスプリング 054-9126-02 Spool lock plate axis スプールロック軸ビス New addition (3074) Change of screw(9612-1745-02→9126) 3074新設、9612より9126に変更	 9126 3071 0392-02 ★3074-02 9126-02	 9612-1745-02 0392-01 9612-1745-02
054-3074-03 (Page. 14) Spool axis return spring スプール軸戻しスプリング Change in dimention and shape 寸法及び形状変更	 ★3074-03	 ★3074-02
054-4368-02 (Page. 14) Lead wire-G リード線G Change in length 長さ変更	 4368-02	 4368-01
054-2117-02 (Page. 14) X Contact isolation tape X接片絶縁テープ Addtion of the sticking position 貼付位置追加	 2117-02	
9611-1425-01 (Page. 14) Phillips type screw 十字穴付きなべ小ねじ Change of screw type (9621→9611) 9621より9611に変更		

Parts No., Parts Name and Change contents 部品番号・部品名称・変更内容	New Type Parts 新　部　品	Old Type Parts 旧　部　品
054-0433-02 (Page. 15) S1 base plate S 1ベースプレート Pattern change パターン変更	 0433-02	 0433-01
054-1086-03 (Page. 15) Seatter シャッター幕傷防止布 Material change 材料変更	Material: Teflon tape 材　料：ニトフロンテープ 1086-03	Material: Rubber coat cloth 材　料：ゴム引布幕 1086-02
054-4369-02 (Page. 15) Lead wire-H リード線H Change in length 長さ変更	 4369-02	 4369-01
054-4374-02 (Page. 15) Lead wire-M リード線M Change in length 長さ変更	 4374-02	 4374-01
054-2111-03 (Page. 16) X contact-B isolation cover X接片B絶縁カバー Discontinue supply of parts 供給中止	 0612-02	 2113-03 (0612-01)
054-0613-02 (Page. 16) Brake lever-B set ブレーキレバーBセット Change in dimention 寸法変更	 0613-02 (0202-02)	 0613-01 (0202-01)
054-3007-03 (Page. 16) Sprocket gear under side スプロケットギヤー下 Change in shape 形状変更	 3007-03	 3007-02

How to reassembly of new parts (Parts No. 3058 and 3074)
新設部品（部品番号 3058，3074）組込要領

1. Fix 0392 then put on 3074, fasten them with 9126 and 9612-1720-02.
   (Attend to direction of 3074). See Fig. 1.
2. Apply grease to 0362 and fix to 3058. See Figs. 2 and 3.
   (Attend to direction of 3058).
3. Insert 9791-3758-40 or 9792-3758-40 in the spool axis then put 0362.
   When the extreme point of 3058 is illustrated in the Fig. 4 for attaching 9437.
4. Fix 0388 illustrated in the Fig. 5 for 3074 then fasten them with 9103.
5. Fasten 9104 to 0361. 3074 be sure to illustrated in the Fig. 5.

1. 0392をはめ込み，その上に3074を置き，9126及び9612-1720-02で止める。
   3074の方向に注意。Fig. 1参照。
2. 0362にグリースを塗り3058をはめる。3058の方向に注意。Fig. 2，3参照。
3. 9791-3758-40又は9792-3758-40をスプール軸に通し0362を置く。その時3058の先端はFig. 4のように3066の下側の9437に掛ける。
4. 3074がFig. 5のようになるように0388をはめ9103で止める。
5. 0361を9104で止める。3074はFig. 5のようになること。

Fig. 1

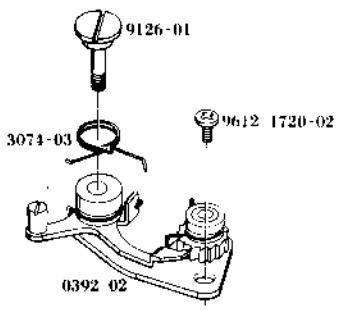


Fig. 2

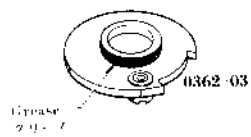


Fig. 3

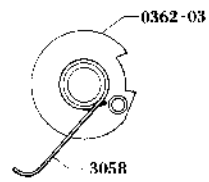


Fig. 4

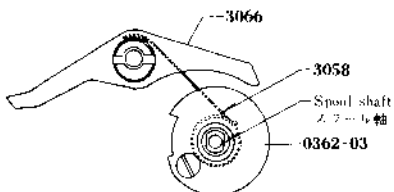
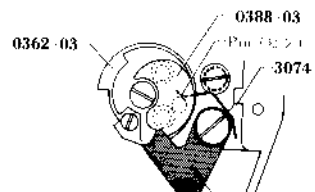


Fig. 5



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9613-1725-01	14
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9613-1730-12	1
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9613-1740-01	4
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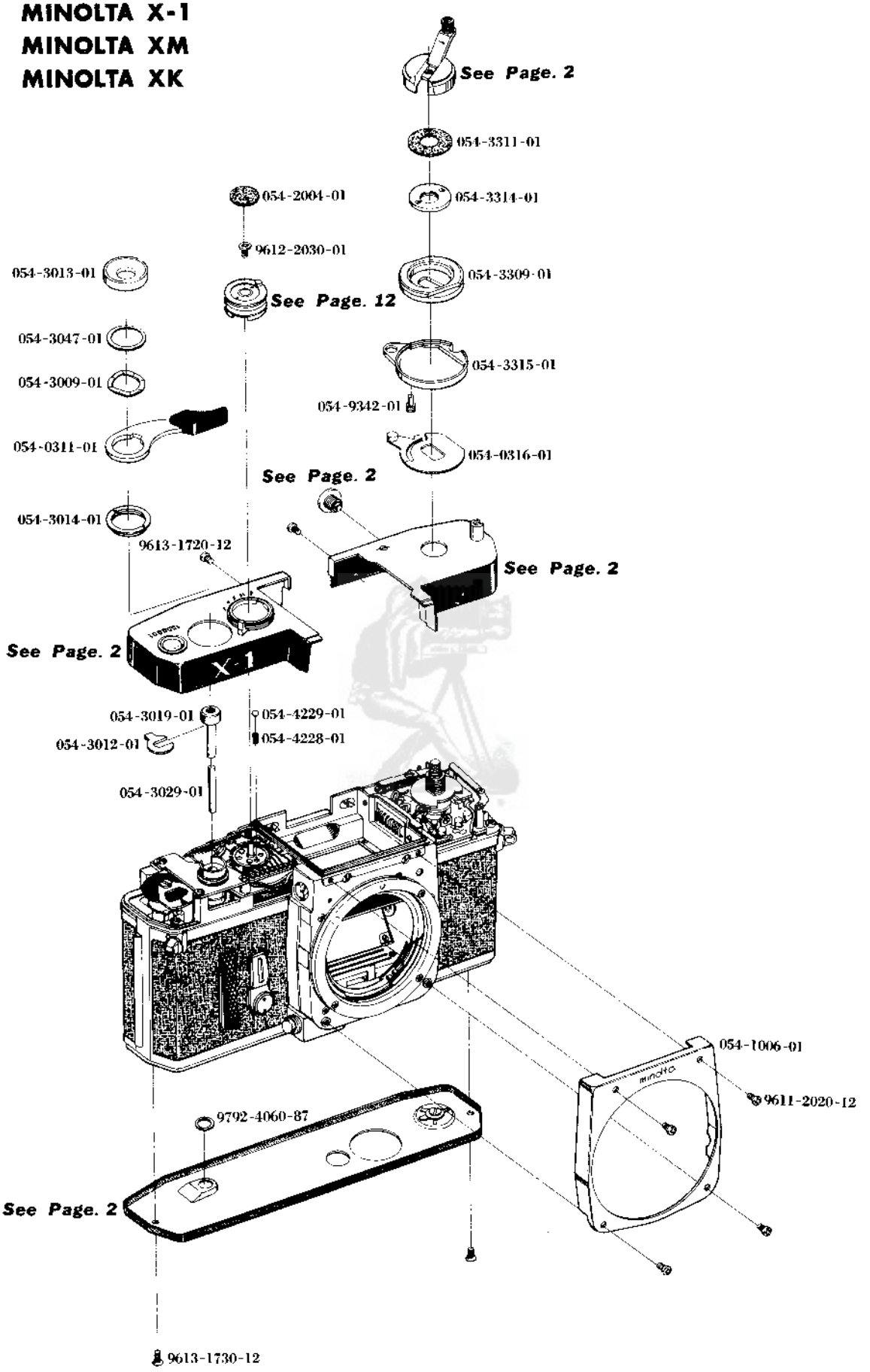

Part No. 部品番号	Part Name 部品名称	Unit 員数
054-0311-01	Winding lever set 巻上レバーセット	1
054-0316-01	Shoe lock spring set シューロックばねセット	1
054-1006-01	Front cover 前カバー	1
054-2004-01	Leather cover スピードダイヤル連動環ナットカバー	1
054-3009-01	Winding lever spring 巻上レバースプリング	1
054-3012-01	Coupling washer 回り止め板	1
054-3013-01	Winding lever cap 巻上レバーキャップ	1
054-3014-01	Decoration ring 巻上軸飾り環	1
054-3019-01	Shutter button シャッター釦	1
054-3029-01	Shutter button axis シャッター釦芯	1
054-3047-01	Washer ワッシャー	1
054-3309-01	Rewinding knob seat 巻戻しノブ座	1
054-3311-01	Nut cover 取付ナットカバー	1
054-3314-01	Knob setting nut 巻戻しノブ座取付ナット	1
054-3315-01	Knob decoration ring 巻戻しノブ座飾り環	1
054-4228-01	L.E click spring L.Eクリックスプリング	1
054-4229-01	L.E click ball L.Eクリックボール	1
054-9342-01	Shoe lock pin シューロックピン	1
9611-2020-12	Phillips type screw 十字穴付きなべ頭小ねじ	4
9612-2030-01	Phillips type screw 十字穴付きなべ頭小ねじ	1
9613-1720-12	Phillips type screw 十字穴付き皿小ねじ	2
9613-1730-12	Phillips type screw 十字穴付き皿小ねじ	2
9792-4060-87	Washer ワッシャー	1

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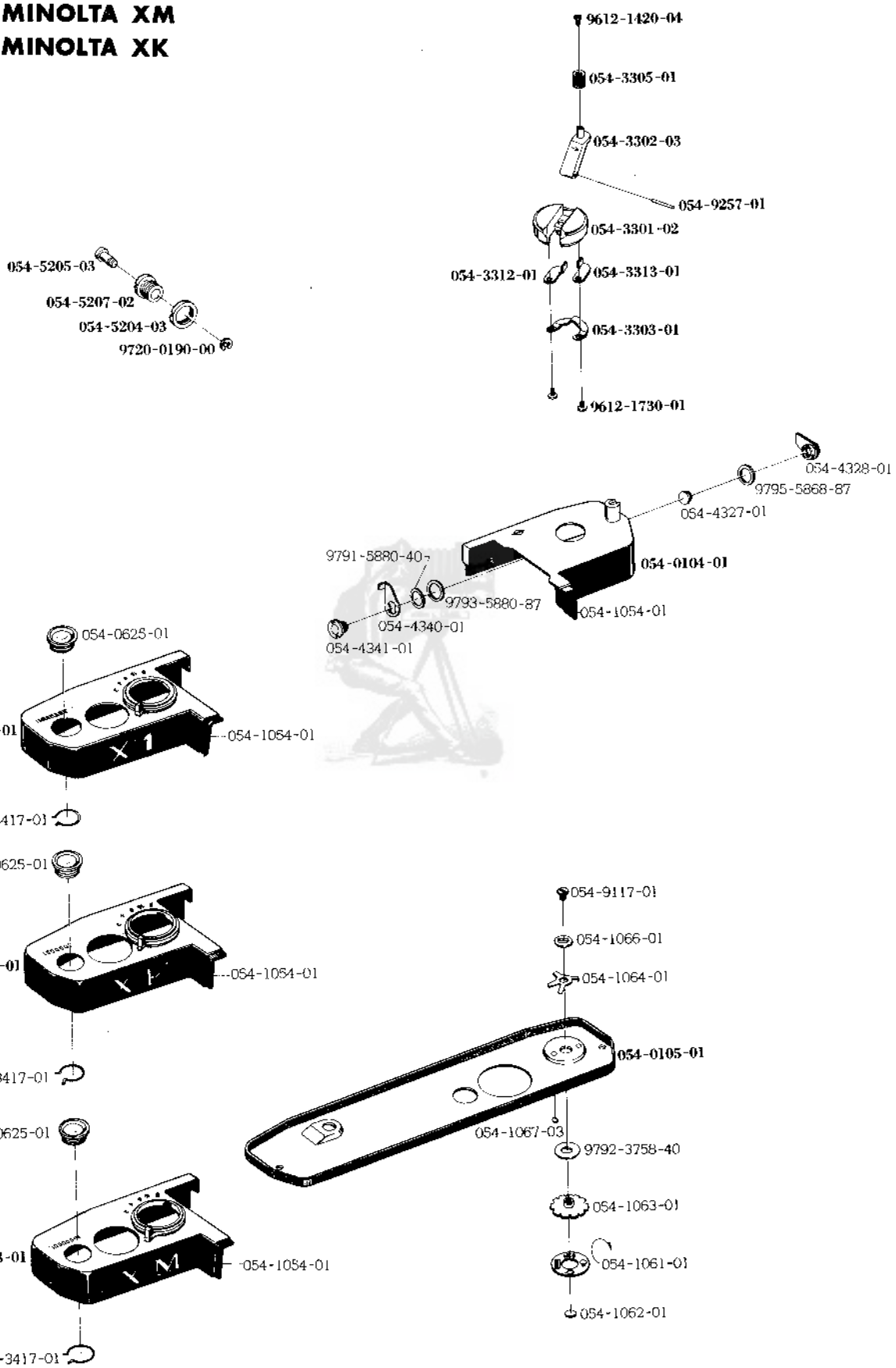

Part No. 部品番号	Part Name 部品名称	Unit 員数
054-0103-01	Top cover right set 上カバー右セット	1
054-0625-01	Counter window set カウンター窓セット	1
054-1054-01	Shield シールド	1
054-3417-01	Decoration spring 飾り環止めスプリング	1
058-0103-01	Top cover right set 上カバー右セット	1
054-0625-01	Counter カウンター窓セット	1
054-1054-01	Shield シールド	1
054-3417-01	Decoration ring stopper spring 飾り環止めスプリング	1
062-0103-01	Top cover right set 上カバー右セット	1
054-0625-01	Counter window set カウンター窓セット	1
054-1054-01	Shield シールド	1
054-3417-01	Decoration ring stopper spring 飾り環止めスプリング	1
054-0104-01	Top cover left set 上カバー左セット	1
054-1054-01	Seal シールド	1
054-4327-01	B.C lamp window B.Cランプ窓	1
054-4328-01	B.C Lever B.Cレバー	1
054-4340-01	B.C switch lever B.Cスイッチレバー	1
054-4341-01	B.C lever nst B.Cレバーナット	1
9791-5880-40	Adjusting washer 調整用ワッシャー	1
9793-5880-87	Washer ワッシャー	1
9795-5868-87	Washer ワッシャー	1
054-0105-01	Bottom cover set 下カバーセット	1
054-1061-01	F Indicator Fインジケーター	1
054-1062-01	Decoration plate 飾り板	1
054-1063-01	F.I Click plate FIクリック板	1
054-1064-01	F.I Click spring FIクリックばね	1
054-1066-01	Spring receiver スプリング受け	1
054-1067-03	Click ball クリックボール	1
054-9117-01	Screw ミラー調節板押えビス	1
9792-3758-40	Washer ワッシャー	1
054-3301-02	Rewinding knob 巻戻しノブ	1
054-3302-03	Rewinding handle 巻戻しハンドル	1
054-3303-01	Handle spring 巻戻しハンドルスプリング	1
054-3305-01	Handle knob 巻戻しハンドルつまみ	1
054-3312-01	Handle receiver-A 巻戻しハンドル受けA	1
054-3313-01	Handle receiver-B 巻戻しハンドル受けB	1
054-5204-03	Penta prism lock button ring ペンタロック解除釦座	1
054-5205-03	Penta prism lock button ペンタロック解除釦	1
054-5207-02	Button ring set screw ボタン座止めビス	1
054-9257-01	Rewinding handle axis 巻戻しハンドル軸	1
9612-1420-04	Phillips type screw 十字穴付きなべ頭小ねじ	1
9612-1730-01	Phillips type screw 十字穴付きなべ頭小ねじ	2
9791-5880-40	Washer ワッシャー	1
9720-0190-00	Coupling Washer 割ワッシャー	1

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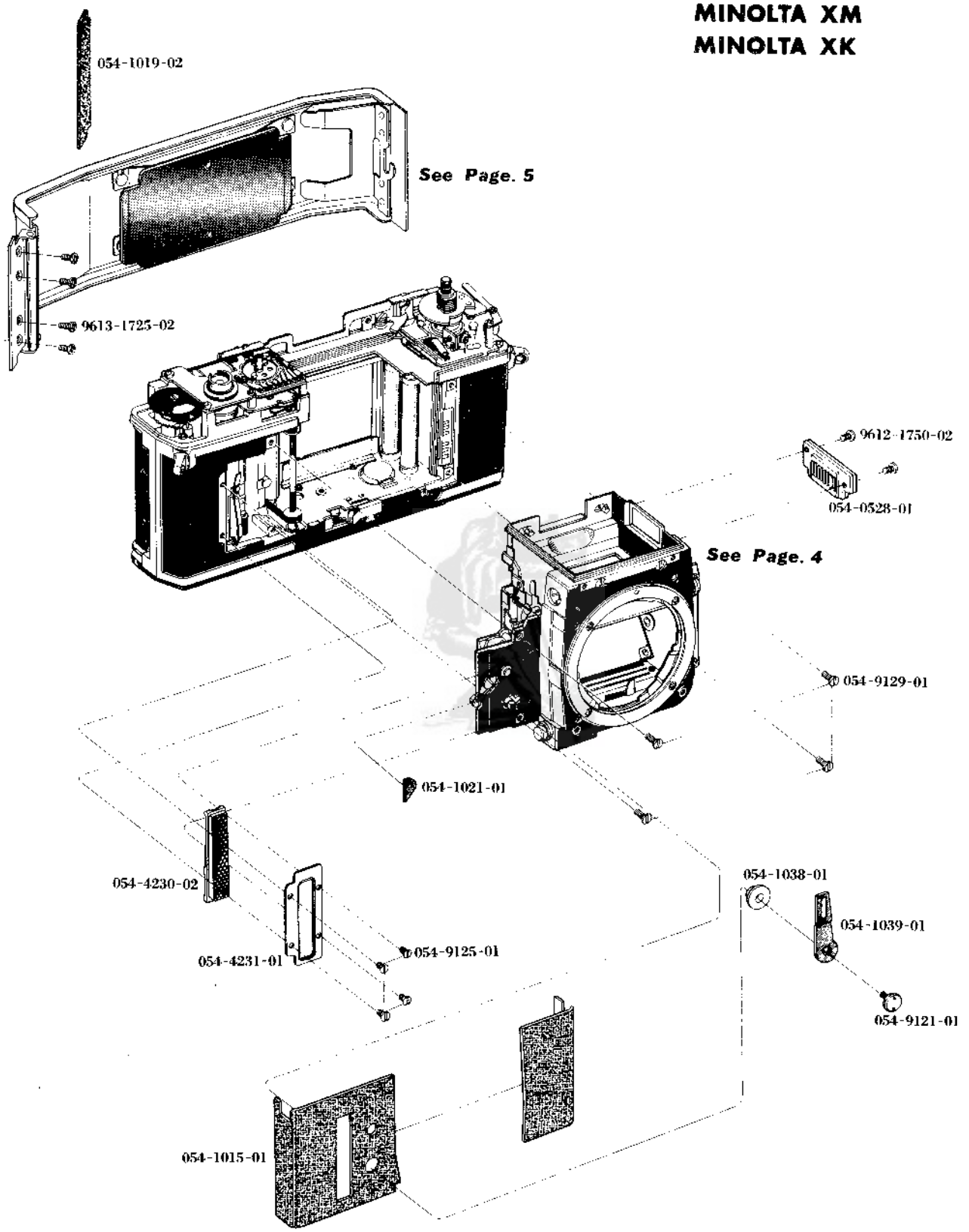

Part No. 部品番号	Part Name 部 品 名 称	Unit 員数
054-0528-01	Penta prism connective contact set ペンタ連絡接片ホルダーセット	1
054-1015-01	Body leather ボデー貼皮	1
054-1019-02	Shield 裏蓋遮光布	1
054-1021-01	Shield cap 前枠蓋	1
054-1038-01	Self timer bush 作動板押えリング	1
054-1039-01	Self charge lever セルフチャージレバー	1
054-4230-02	Switch-1 Plate スイッチ1作動板	1
054-4231-01	Switch-1 holder スイッチ1ホルダー	1
054-9121-01	Self charge set screw セルフチャージレバー止めねじ	1
054-9125-01	Mask set screw マスク押えビス	4
054-9129-01	Front frame set screw 前枠押えビス	4
9612-1750-02	Phillips type screw 十字穴付きなべ頭小ねじ	2
9613-1725-02	Phillips type screw 十字穴付き皿小ねじ	4

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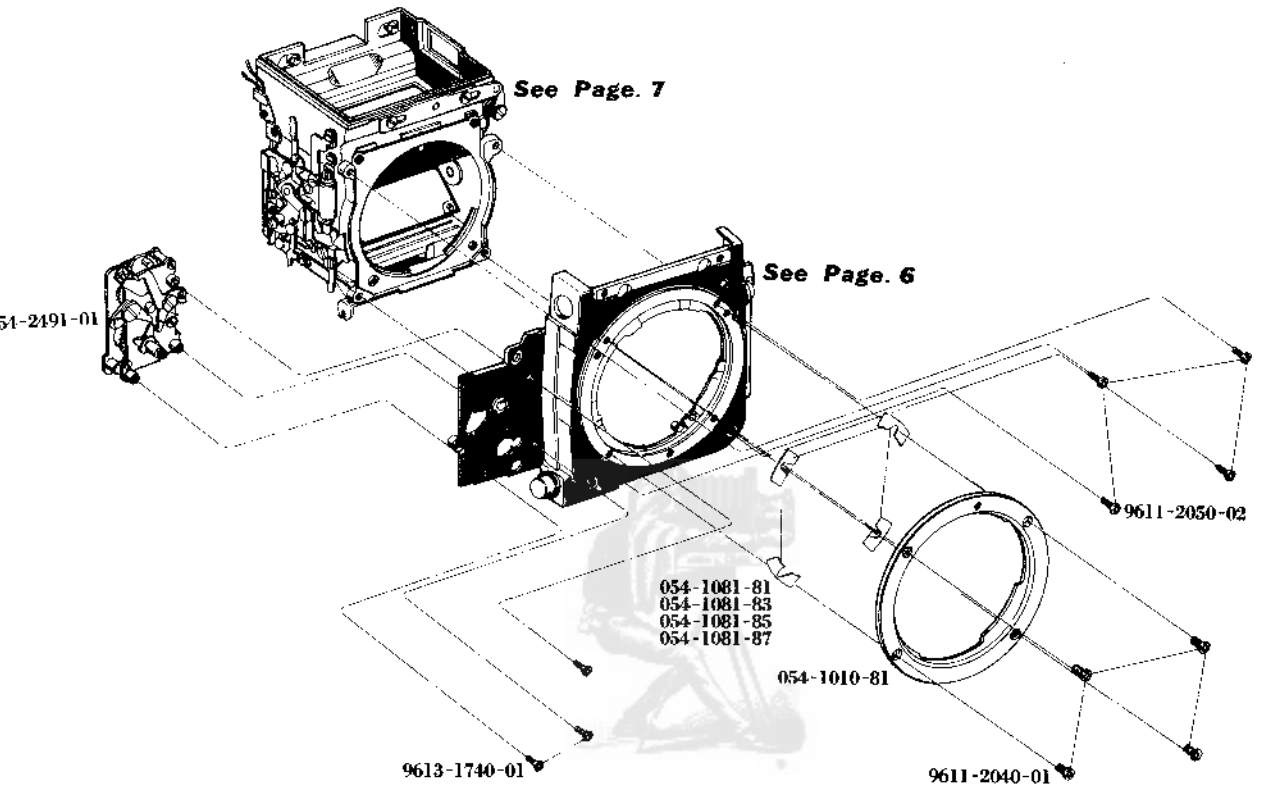

Part No. 部品番号	Part Name 部品名称	Unit 員数
054-2491-01	Self timer gear セルフギヤー	1
054-1010-81	Bayonet mount バヨネット座板	1
054-1081-81	Body-back adjusting washer (0.02t) ボデーバック調整ワッシャー	each 4 各 4
054-1081-83	Body-back adjusting washer (0.05t) ボデーバック調整ワッシャー	each 4 各 4
054-1081-85	Body-back adjusting washer (0.06t) ボデーバック調整ワッシャー	each 4 各 4
054-1081-87	Body-back adjusting washer (0.1t) ボデーバック調整ワッシャー	each 4 各 4
9611-2040-01	Phillips type screw 十字穴付きなべ頭小ねじ	4
9611-2050-02	Phillips type screw 十字穴付きなべ頭小ねじ	4
9613-1740-01	Phillips type screw 十字穴付き皿小ねじ	3

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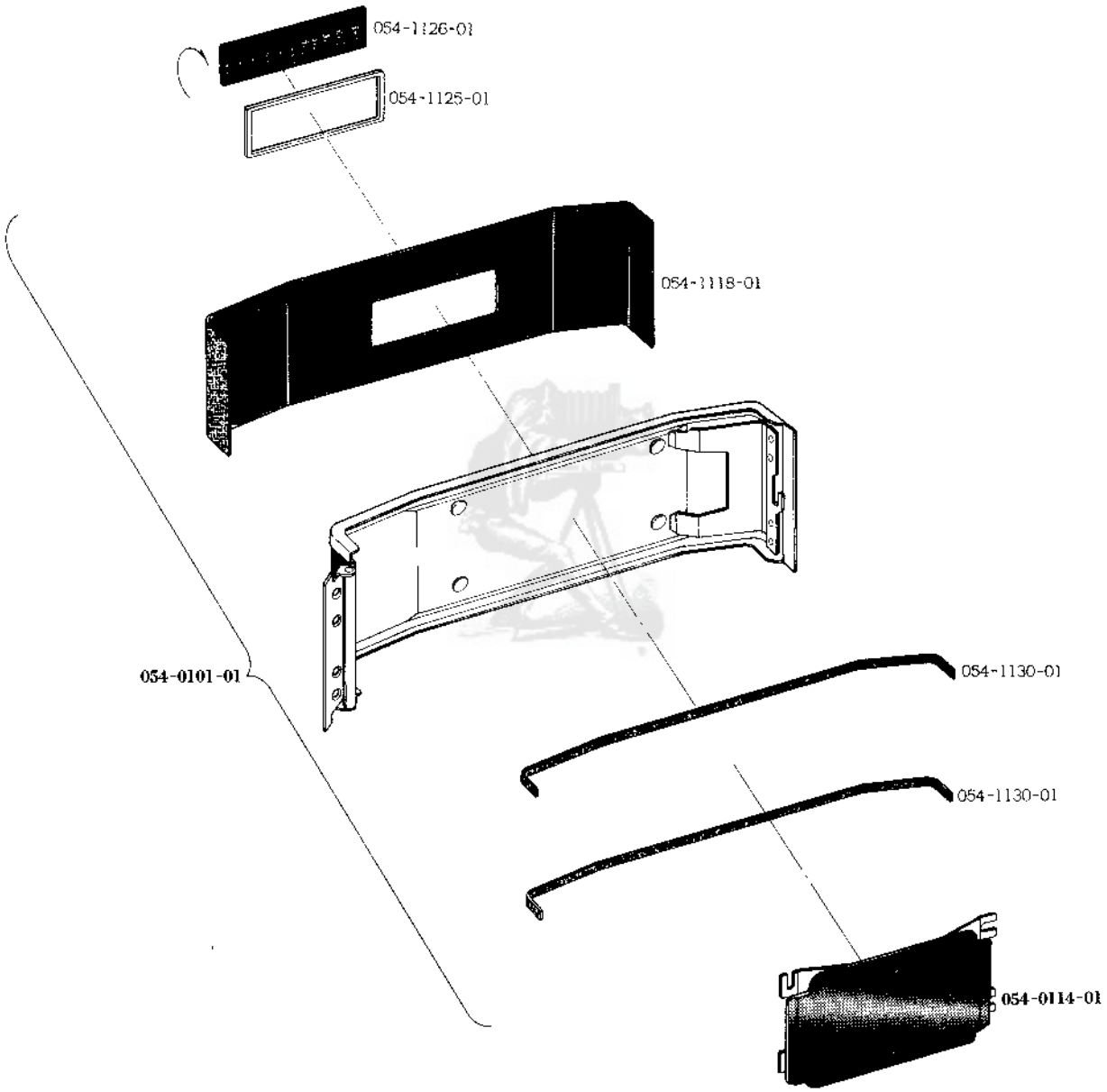

Part No. 部品番号	Part Name 部品名称	Unit 員数
054-0101-01	Back cover set　裏蓋セット	1
054-1118-01	Back cover leather　裏蓋貼皮	1
054-1125-01	ASA index frame　換算板飾り枠	1
054-1126-01	ASA, DIN Conversion plate　ＡＳＡ，ＤＩＮ換算板	1
054-1130-01	Back cover packing-A　裏蓋防音パッキンA	2
054-0114-01	Pressure plate set　圧着板セット	1

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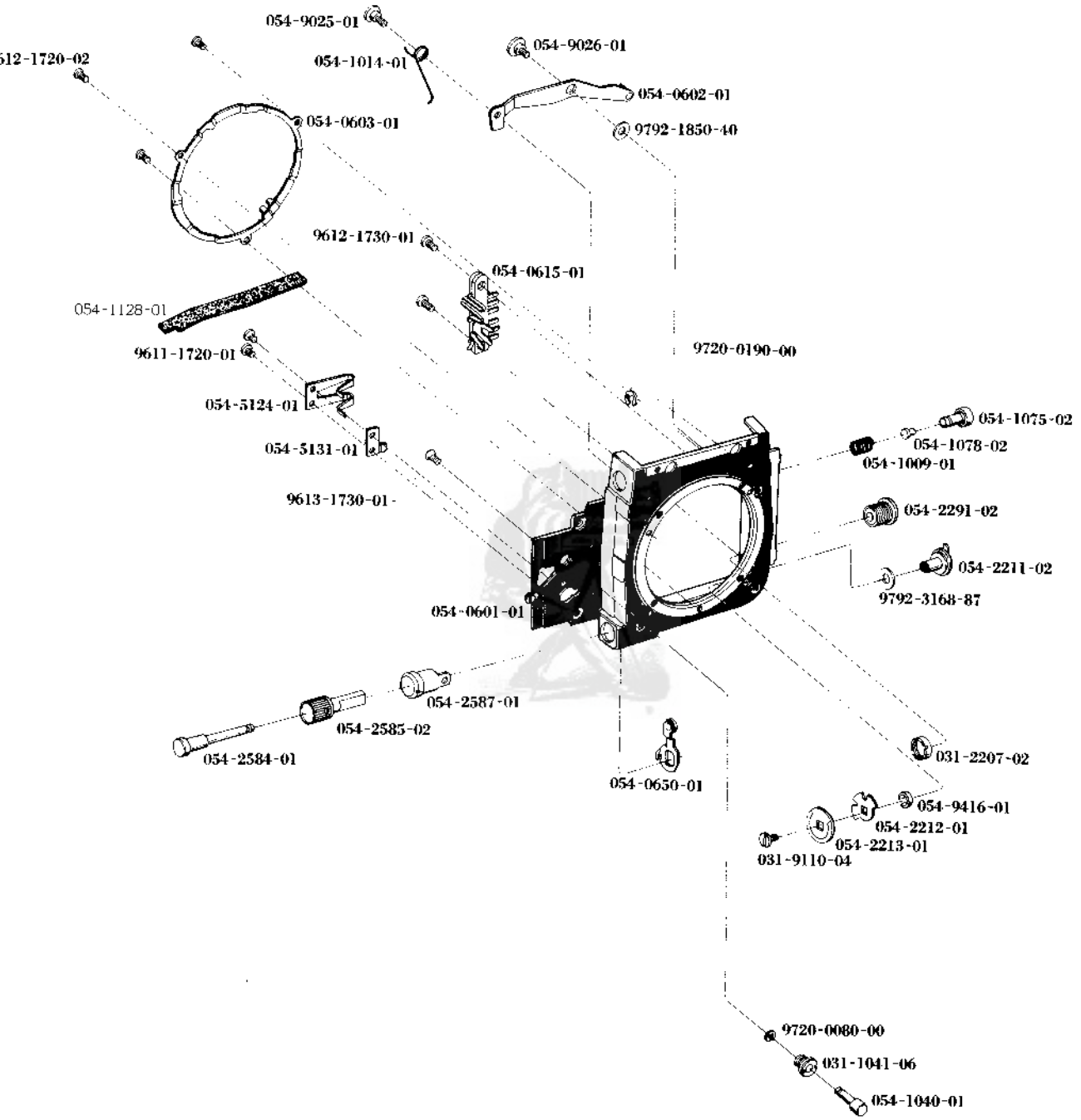

Part No. 部品番号	Part Name 部品名称	Unit 員数
054-0601-01	Front frame set 前枠セット	1
054-1128-01	Front frame packing 前枠防音パッキン	1
054-0602-01	Lock lever set ロックレバーセット	1
054-0603-01	Bayonet spring set バヨネットスプリングセット	1
054-0615-01	Isolation plate set シンクロ接片絶縁基板Aセット	1
054-0650-01	Mirror lock suppor lever ミラーロック補助レバーセット	1
054-2291-02	Synchro terminal シンクロターミナル	1
054-1009-01	Lock button spring ロック釦スプリング	1
054-1014-01	Lock lever spring ロックレバースプリング	1
054-1040-01	Self motion button 始動釦	1
031-1041-06	Self motion button seat 始動釦座	1
054-1075-02	Lock button ロック釦	1
054-1078-02	Lock button axis ロック釦頭	1
031-2207-02	Outer barrel nut 外筒締付ナット	1
054-2211-02	Synchro change switch knob シンクロ切換スイッチつまみ	1
054-2212-01	Synchro change switch click plate シンクロ切換スイッチクリック板	1
054-2213-01	Synchro change switch plate シンクロ切換スイッチローター	1
054-2584-01	Pre-view Button axis 絞り込み釦軸	1
054-2585-02	Pre-view button 絞り込み釦	1
054-2587-01	Pre-view button seat 絞り込み釦座	1
054-5131-01	Mirror lock stopper ミラーロックストッパー	1
054-5124-01	Lock lever press spring ロックレバー押えスプリング	1
054-9025-01	Lock lever spring axis ロックレバースプリング軸	1
054-9026-01	Lock lever axis ロックレバー軸	1
031-9110-04	Screw シンクロ切換スイッチつまみ止めビス	1
054-9416-01	Changing switch ring 切換スイッチ間隔リング	1
9611-1720-01	Phillips type screw 十字穴付きなべ頭小ねじ	2
9612-1720-02	Phillips type screw 十字穴付きなべ頭小ねじ	3
9612-1730-01	Phillips type screw 十字穴付きなべ頭小ねじ	2
9613-1730-01	Phillips type screw 十字穴付き皿小ねじ	1
9792-1850-40	Washer ワッシャー	1
9792-3168-87	Washer ワッシャー	1
9720-0080-00	Coupling washer 割ワッシャー	1
9720-0190-00	Coupling washer 割ワッシャー	1

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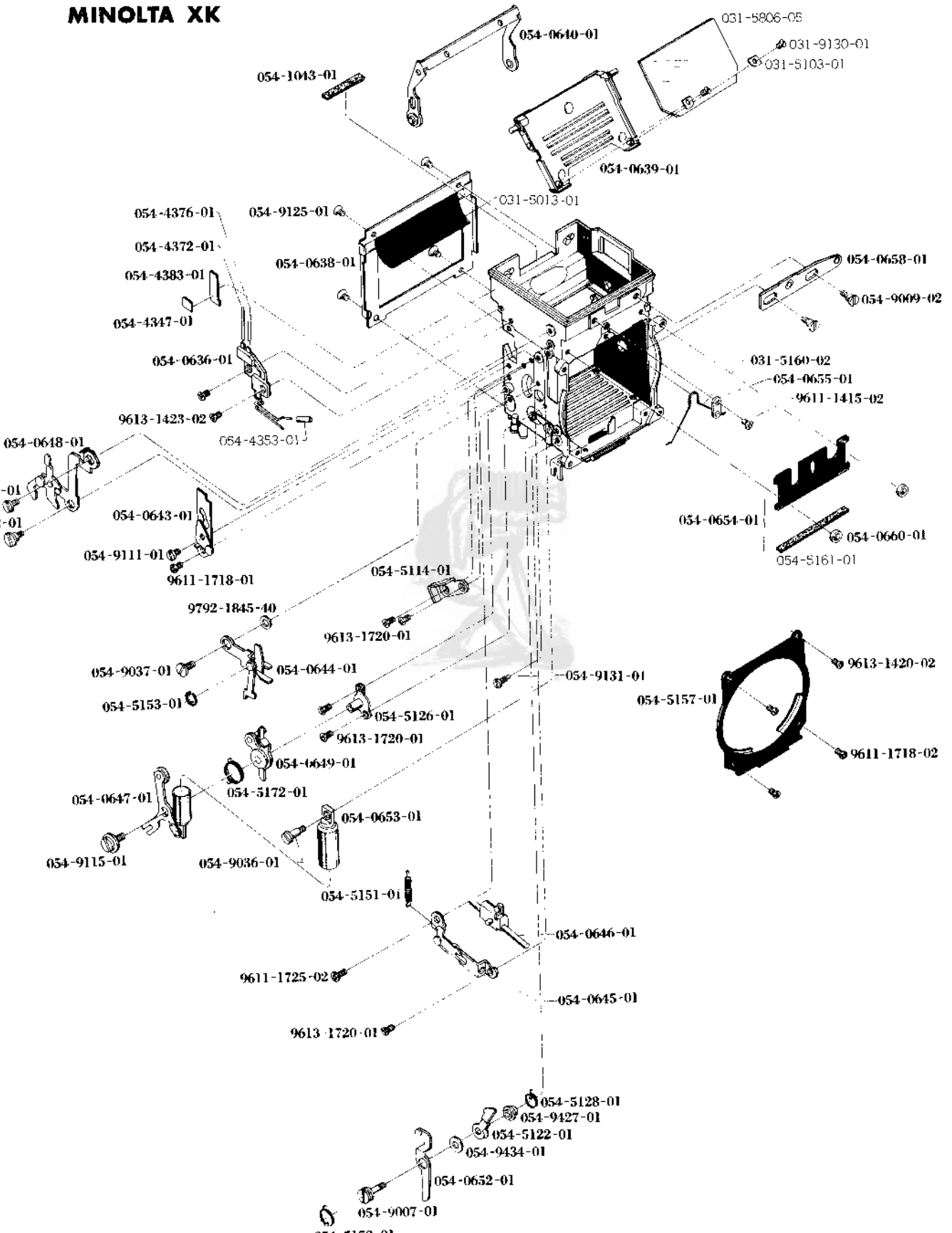

Part No. 部品番号	Part Name 部品名称	Unit 員数
054-0636-01	Switch-3 holder set スイッチホルダーセット	1
054-4353-01	Isolation tube スイッチ3接片絶縁チューブ	1
054-0638-01	Mirror box mask set ミラーボックスマスクセット	1
031-5013-01	Mirror curtain ミラーカーテン	1
054-0639-01	Mirror holder set ミラーホルダーセット	1
031-5103-01	Mirror setting plate ミラー取付け板	2
031-5806-05	Mirror ミラー	1
031-9130-01	Mirror setting screw ミラー押えビス	2
054-0640-01	Mirror operation lever-B set ミラー操作レバーBセット	1
054-0643-01	Mirror guide plate-B set ミラーガイド板Bセット	1
054-0644-01	Release lever set レリーズレバーセット	1
054-0645-01	Piston axis receiver plate set MP駆動ピストン軸受板セット	1
054-0646-01	Piston set MP駆動ピストンセット	1
054-0647-01	Mirror operation lever set ミラー駆動レバーセット	1
054-0648-01	Shutter start lever set 補助始動レバーセット	1
054-0649-01	Mirror operation lever set ミラー操作レバーセット	1
054-0652-01	Mirror lock lever set ミラーロックレバーセット	1
054-0653-01	Damper cylinder set ダンパーシリンダーセット	1
054-0654-01	Mirror box shield plate set ミラーボックス遮光板セット	1
054-5161-01	Mirror box shield plate dompper ミラーボックス遮光板ダンパー	1
054-0655-01	Spring holder set ミラー遮光板スプリングホルダーセット	1
054-0658-01	Slide plate-A set ペンタロックスライド板Aセット	1
054-0660-01	Shield guide collar 遮光板ガイドカラー	2
054-1043-01	Shield packing 接眼部遮光パッキング	1
054-4347-01	Switch-3 isolation sheet スイッチ3絶縁シート	1
054-4372-01	Lead wire-K (Red ℓ = 30mm) リード線K	1
054-4376-01	Lead wire-O (Orange ℓ = 30mm) リード線O	1
054-4383-01	Switch-3 cord cohesion tape スイッチ3コード用粘着テープ	1
054-5114-01	M.P Stopper MPストッパー	1
054-5122-01	Mirror operation brake lever ミラー駆動ブレーキレバー	1
054-5126-01	Mirror operation lever-B axis ミラー操作レバーB軸	1
054-5128-01	Brake lever spring ミラー駆動ブレーキレバースプリング	1
054-5151-01	Release lever spring レリーズレバースプリング	1
054-5152-01	Mirror lock lever spring ミラーロックレバースプリング	1
054-5153-01	Lever spring レリーズ仲介レバースプリング	1
054-5157-01	Flare shield plate フレアー防止板	1
031-5160-02	Mirror box shield plate spring ミラーボックス遮光板スプリング	1
054-5172-01	Mirror return spring ミラー復帰スプリング	1
054-9007-01	Mirror lock lever axis ミラーロックレバー軸	1
054-9009-02	Guide axis ロックスライド板ガイド軸	2
054-9032-01	Shutter start lever set axis 補助始動レバー調節板軸	1
054-9036-01	Dampper stop axis ダンパー止め軸	1
054-9037-01	Release lever axis レリーズレバー軸	1
054-9111-01	Adjuster set screw ミラー位置調整板押えビス	1
054-9115-01	Lever axis set screw ミラー操作レバー軸止めビス	1
054-9125-01	Mask set screw マスク押えビス	4
054-9131-01	Condenser holder set screw コンデンサーホルダー止めビス	1
054-9135-01	Adjuster set screw 補助始動レバー調節板ビス	1
054-9427-01	Brake lever axis ミラー駆動ブレーキレバー軸	1
054-9434-01	Washer ワッシャー	1
9611-1415-02	Phillips type screw 十字穴付きなべ頭小ねじ	1
9611-1718-01	Phillips type screw 十字穴付きなべ頭小ねじ	1
9611-1718-02	Phillips type screw 十字穴付きなべ頭小ねじ	2
9611-1725-02	Phillips type screw 十字穴付きなべ頭小ねじ	1
9613-1420-02	Phillips type screw 十字穴付きなべ頭小ねじ	2
9613-1423-02	Phillips type screw 十字穴付き皿小ねじ	2
9613-1720-01	Phillips type screw 十字穴付き皿小ねじ	5
9792-1845-40	Washer ワッシャー	1

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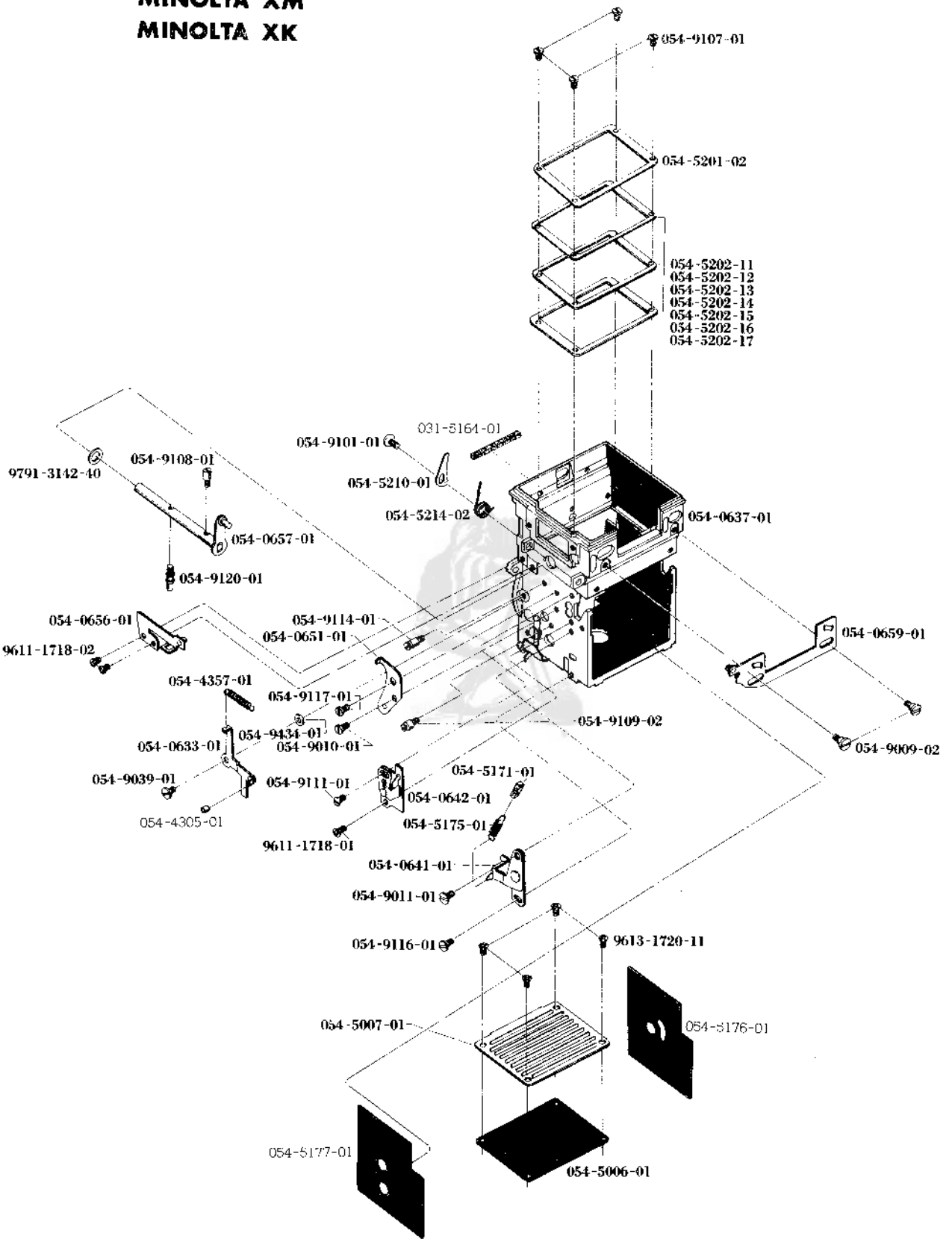

Part No. 部品番号	Part Neme 部品名称	Unit 員数
054-0633-01	Switch-2,-5 changing lever set スイッチ2,5切換レバーセット	1
054-4305-01	Switch-2,-5 Isolation tube スイッチ2,5絶縁チューブ	1
054-0637-01	Mirror box set ミラーボックスセット	1
031-5164-01	Mirror cusion ミラークッション	1
054-5176-01	Flare shield right side フレアー防止板右	1
054-5177-01	Flare shield left side フレアー防止板左	1
054-0641-01	Mirror stopper set ミラーストッパーセット	1
054-0642-01	Mirror guide plate-A set ミラーガイド板Aセット	1
054-0651-01	Mirror adjust plate set ミラー調整板セット	1
054-0656-01	Screen lock spring set 焦点板ロックスプリングセット	1
054-0657-01	Penta lock release axis set ペンタロック解除連動軸セット	1
054-0659-01	Penta lock slide plate set ペンタロックスライド板Bセット	1
054-4357-01	Switch-2,-5 changing spring スイッチ2,5切換えスプリング	1
054-5006-01	Flare shield plate フレアー防止底板	1
054-5007-01	Under side flare shield plate 下部フレアー防止板	1
054-5171-01	Spring packing-B スプリング消音パッキンB	1
054-5175-01	Mirror stopper spring ミラーストッパースプリング	1
054-5201-02	Eye-piece frame 視野枠	1
054-5202-11	Focus adjusting washer (0.05t) 焦点面調整板 some 若干	
054-5202-12	Focus adjusting washer (0.07t) 焦点面調整板 some 若干	
054-5202-13	Focus adjusting washer (0.08t) 焦点面調整板 some 若干	
054-5202-14	Focus adjusting washer (0.1 t) 焦点面調整板 some 若干	
054-5202-15	Focus adjusting washer (0.12t) 焦点面調整板 some 若干	
054-5202-16	Focus adjusting washer (0.2 t) 焦点面調整板 some 若干	
054-5202-17	Focus adjusting washer (0.4 t) 焦点面調整板 some 若干	
054-5210-01	Penta lock release lever-A ペンタロック解除連動レバーA	1
054-5214-02	Penta lock spring-A ペンタロックスプリングA	1
054-9009-02	Slide plate guide axis ロックスライド板ガイド軸	2
054-9010-01	Mirror adjustment axis ミラー調節板軸	1
054-9011-01	Mirror stopper axis ミラーストッパー軸	1
054-9039-01	Switch-2,-5 changing lever axis スイッチ2,5切換レバー軸	1
054-9101-01	Release lever-A pressure ペンタロック解除連動レバーA押え	1
054-9107-01	Frame set screw 視野枠止めビス	4
054-9108-01	Penta lock release pin ペンタロック解除連動ピン	1
054-9109-02	Spring hanger ミラーストッパースプリング掛け	1
054-9111-01	Set screw ミラー位置調整板押えビス	1
054-9114-01	Spring hanger スイッチ2,5切換スプリング掛け	1
054-9116-01	Set screw 位置決め板押えビス	1
054-9117-01	Mirror adjusting plate screw ミラー調整板押えビス	1
054-9120-01	Screw 焦点板ロック解除ねじ	1
054-9434-01	Mirror lock lever seat ミラーロックレバー座	1
9611-1718-01	Phillips type screw 十字穴付きなべ頭小ねじ	1
9611-1718-02	Phillips type screw 十字穴付きなべ頭小ねじ	2
9613-1720-11	Phillips type screw 十字穴付き皿小ねじ	4
9791-3142-40	Washer ワッシャー	1

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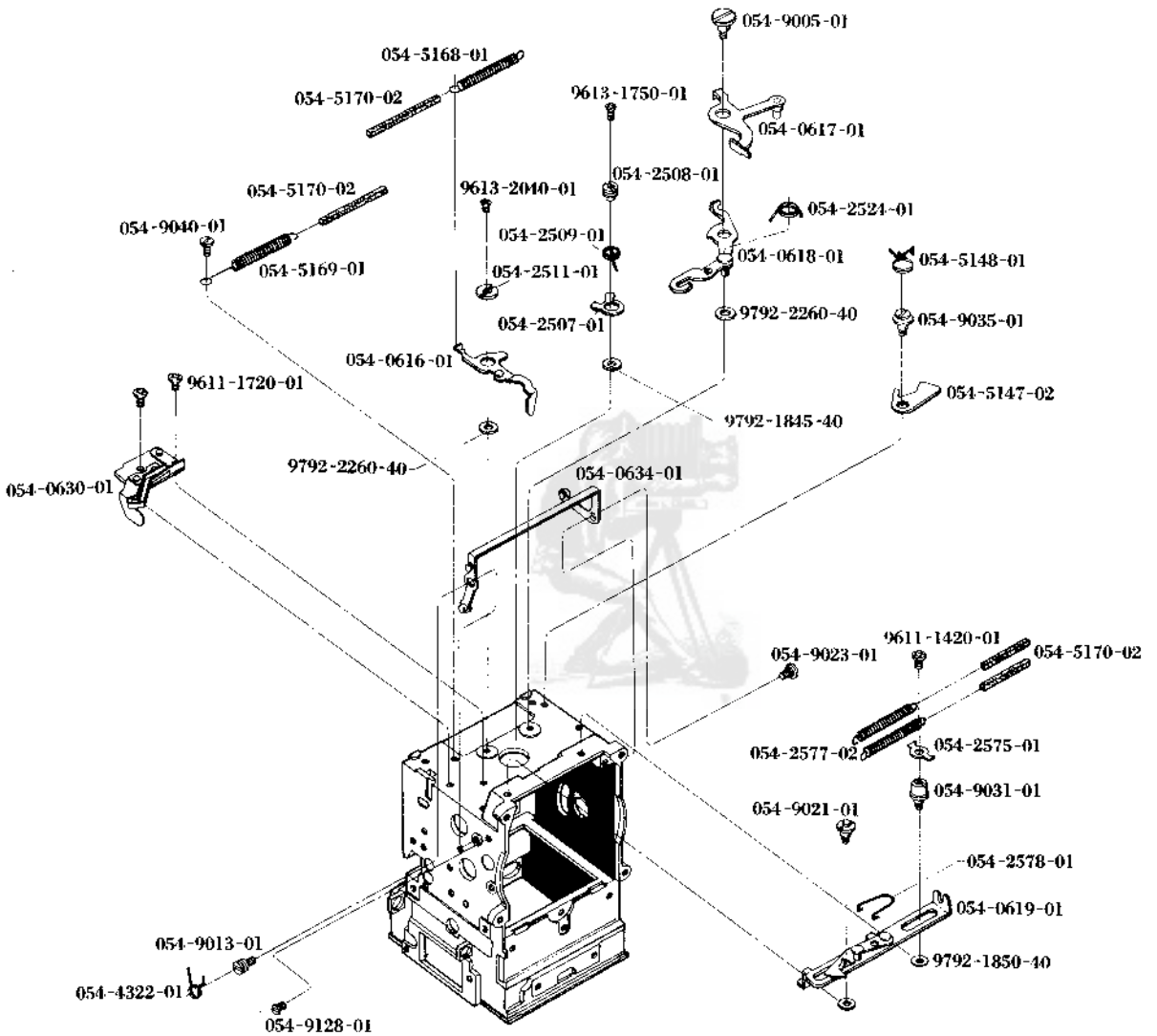

Part No. 部品番号	Part Name 部品名称	Unit 員数
054-0616-01	Pre-set lever-A set プリセットレバーAセット	1
054-0617-01	M.P lever set MP伸介レバーセット	1
054-0618-01	Spring hanger plate set 絞り戻しばね掛け板セット	1
054-0619-01	Pre-set operation plate set 絞り込み摺動板セット	1
054-0630-01	P.V.switch setting holder set PV安全SW取付ホルダーセット	1
054-0634-01	Switch-2,-5 release lever set スイッチ2，5連動レバーセット	1
054-2507-01	M.P lock lever MPロックレバー	1
054-2508-01	M.P lock lever axis MPロックレバー軸	1
054-2509-01	Lock lever spring ロックレバースプリング	1
054-2511-01	Pre-set lever-A axis プリセットレバーA軸	1
054-2524-01	Pre-set operation spring プリセット始動スプリング	1
054-2575-01	Pre-view spring hanger プレビューばね掛け	1
054-2577-02	Pre-view spring プレビューばね	2
054-2578-01	Pre-view operation spring プレビュー操作スプリング	1
054-4322-01	Switch-2,-5 release lever スイッチ2，5連動レバー	1
054-5147-02	M.P lever MP補助レバー	1
054-5148-01	M.P lever spring MP補助レバースプリング	1
054-5168-01	M.P return spring MP戻しスプリング	1
054-5169-01	M.P operation spring MP駆動SP	1
054-5170-02	Spring packing-A スプリング消音パッキンA	4
054-9005-01	Pre-set release lever axis プリセット連動レバー軸	1
054-9013-01	Switch-2,-5 release lever axis-A スイッチ2，5連動レバー軸A	1
054-9021-01	Pre-set operation plate axis-B 絞り込み摺動板軸B	1
054-9023-01	Switch-2,-5 release lever axis-B スイッチ2，5連動レバー軸B	1
054-9031-01	Pre-view operation plate axis-A 絞り込み摺動板軸A	1
054-9035-01	M.P release lever axis MP補助レバー軸	1
054-9040-01	M.P operation spring hanger MP駆動スプリング掛け	1
054-9128-01	Switch-2,-5 opeartion spring hanger-B スイッチ2，5連動スプリング掛けB	1
9611-1420-01	Phillips type screw 十字穴付きなべ頭小ねじ	1
9611-1720-01	Phillips type screw 十字穴付きなべ頭小ねじ	2
9613-1750-01	Phillips type screw 十字穴付き皿小ねじ	1
9613-2040-01	Phillips type screw 十字穴付き皿小ねじ	1
9792-1845-40	Washer ワッシャー	1
9792-1850-40	Washer ワッシャー	2
9792-2260-40	Washer ワッシャー	2

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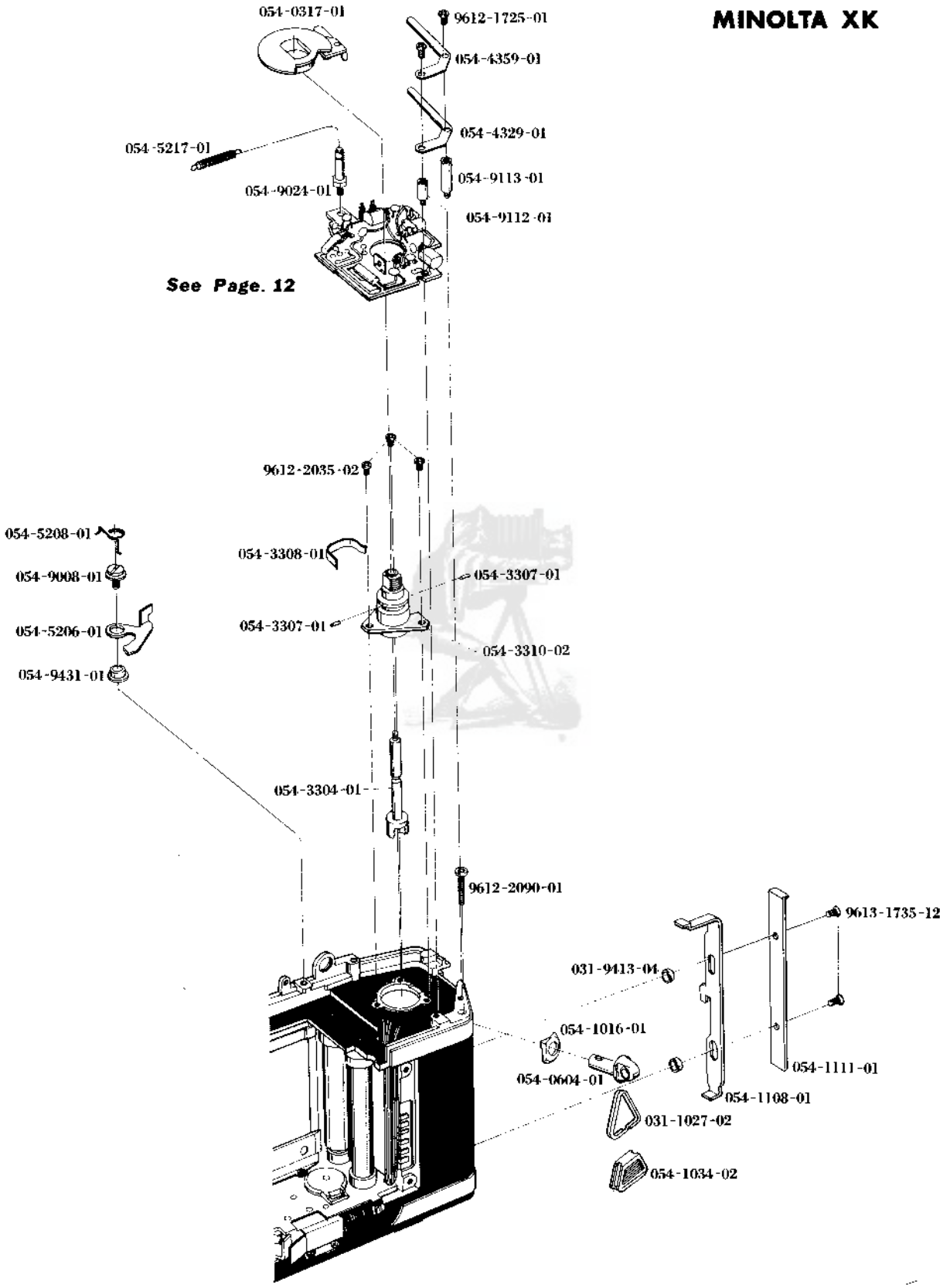

Part No. 部品番号	Part Name 部品名称	Unit 員数
054-0317-01	Top cover receiver set 上カバー受けセット	1
054-0604-01	Strap hanger set 吊環セット	1
054-1016-01	Strap hanger seat (right) 吊環座右	1
031-1027-02	Strap hanger 三角吊環	1
054-1034-02	Strap hanger stopper 三角環廻り止め	1
054-1108-01	Back cover lock 裏蓋ロック	1
054-1111-01	Lock plate ロック押え板	1
054-3304-01	Rewinding axis 巻戻し軸	1
054-3307-01	Rewinding axis click pin 巻戻し軸クリックピン	2
054-3308-01	Rewinding axis spring 巻戻し軸スプリング	1
054-3310-02	Rewinding axis receiver 巻戻し軸受け	1
054-4329-01	B.C contact-A BC接片A	1
054-4359-01	B.C contact-B BC接片B	1
054-5206-01	Penta lock lever ペンタロック解除レバー	1
054-5208-01	Penta lock lever spring ペンタロック解除レバースプリング	1
054-5217-01	Penta lock spring-B ペンタロックスプリングB	1
054-9008-01	Penta lock lever axis ペンタロック解除レバー軸	1
054-9024-01	Penta lock spring hanger-A ペンタロックスプリング掛けA	1
054-9112-01	B.C contact axis-A B.C接片支柱A	1
054-9113-01	B.C contact axis-B B.C接片支柱B	1
031-9413-04	Back cover lock guide ring 裏蓋ロックガイドリング	2
054-9431-01	Penta lock lever bush ペンタロック解除レバーブッシュ	1
9612-1725-01	Phillips type screw 十字穴付きなべ頭小ねじ	2
9612-2035-02	Phillips type screw 十字穴付きなべ頭小ねじ	3
9612-2090-01	Phillips type screw 十字穴付きなべ頭小ねじ	1
9613-1735-12	Phillips type screw 十字穴付きなべ頭小ねじ	2

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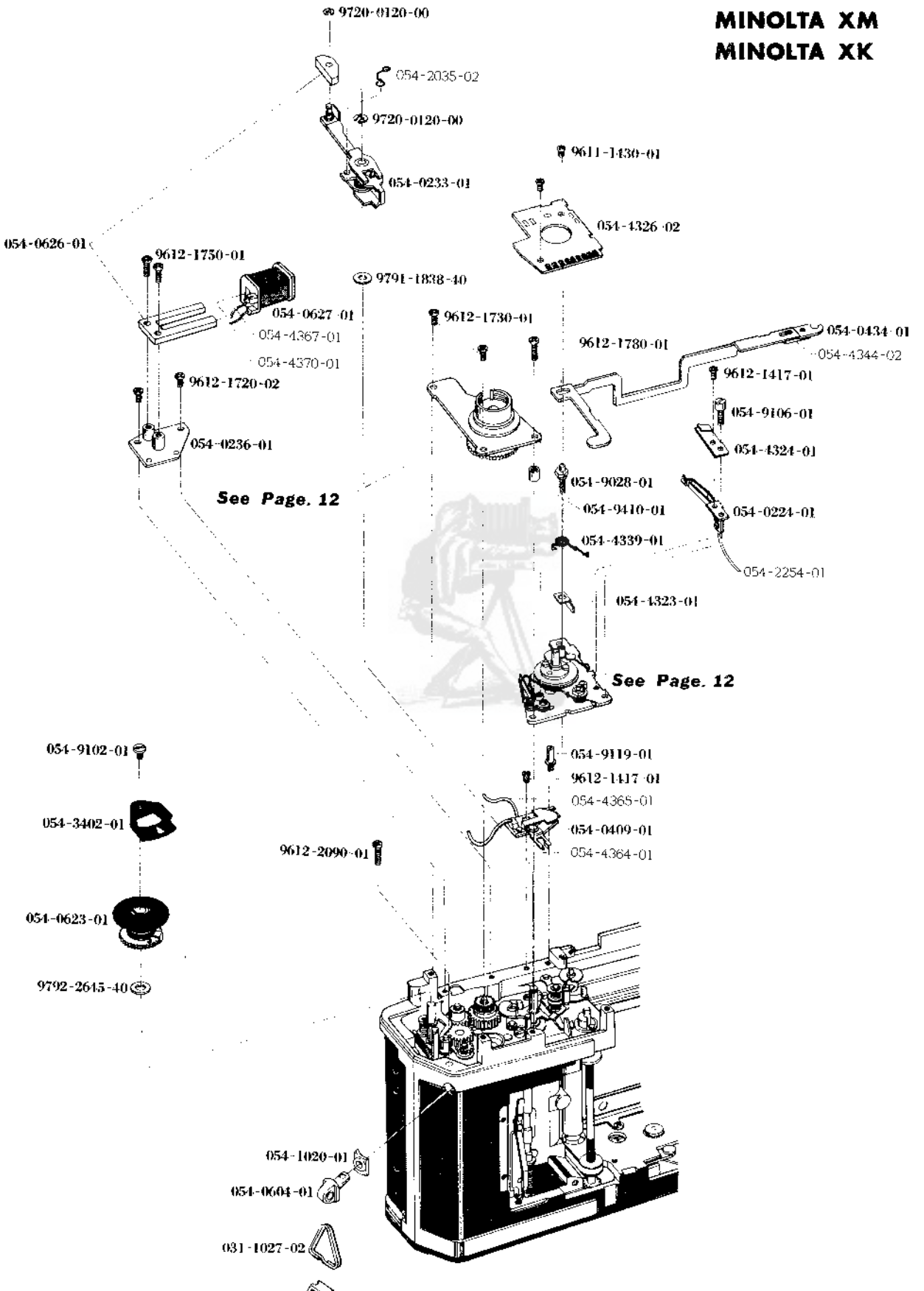

Part No. 部品番号	Part Name 部品名称	Unit 員数
054-0224-01	F.P contact holder set　FP接片ホルダーセット	1
054-2254-01	Synchro cord-D (Grey ℓ=200mm)　シンクロコードD	1
054-0233-01	Over charge lever-A set　オーバーチャージレバーAセット	1
054-2035-02	Over charge spring　オーバーチャージスプリング	1
054-0236-01	Idle gear base set　アイドルギヤー台板セット	1
054-0409-01	Switch-4 contact base set　スイッチ4接片基板セット	1
054-4364-01	Lead wire-C (Black ℓ=25mm)　リード線C	1
054-4365-01	Lead wire-D (Black ℓ=20mm)　リード線D	1
054-0434-01	A-Mswitch operation lever　A-M スイッチ連動レバー	1
054-4344-02	A-M switch isolation tube　A-M スイッチ絶縁チューブ	1
054-0604-01	Strap hanger set　吊環セット	1
054-0623-01	Counter dial set　カウンターダイヤルセット	1
054-0626-01	Magnet core　マグネットコアー	1
054-0627-01	Magnet coil　電磁コイル	1
054-4367-01	Lead wire-F (Brown ℓ=50mm)　リード線F	1
054-4370-01	Lead wire-I (Red ℓ=50mm)　リード線I	1
054-1020-01	Strap hanger seat (left)　吊環座左	1
031-1027-02	Strap hanger　三角吊環	1
054-1034-02	Strap hanger stopper　三角環廻り止め	1
054-3402-01	Indicator　指標板	1
054-4323-01	Cord pressure-A　巻上側コード押えA	1
054-4324-01	Cord pressure-B　巻上側コード押えB	1
054-4326-02	Resistor base plate　抵抗基板	1
054-4339-01	A-M switch spring　A-M スイッチ補助スプリング	1
054-9028-01	Shutter base plate set screw　シャッター台板A止めビス	1
054-9102-01	Indicater pressure　指標板押え	1
054-9106-01	Shutter base plate set screw　シャッター台板止めビス上	1
054-9119-01	Cord guide screw　コードガイドねじ	1
054-9410-01	Winding base plate setting collar　巻上台板位置決めカラー	1
9611-1430-01	Phillips type screw　十字穴付きなべ頭小ねじ	2
9612-1417-01	Phillips type screw　十字穴付きなべ頭小ねじ	2
9612-1720-02	Phillips type screw　十字穴付きなべ頭小ねじ	2
9612-1730-01	Phillips type screw　十字穴付きなべ頭小ねじ	2
9612-1750-01	Phillips type screw　十字穴付きなべ頭小ねじ	2
9612-1780-01	Phillips type screw　十字穴付きなべ頭小ねじ	1
9612-2090-01	Phillips type screw　十字穴付きなべ頭小ねじ	1
9791-1838-40	Washer　ワッシャー	1
9792-2645-40	Washer　ワッシャー	1
9720-0120-00	Coupling washer　割ワッシャー	2

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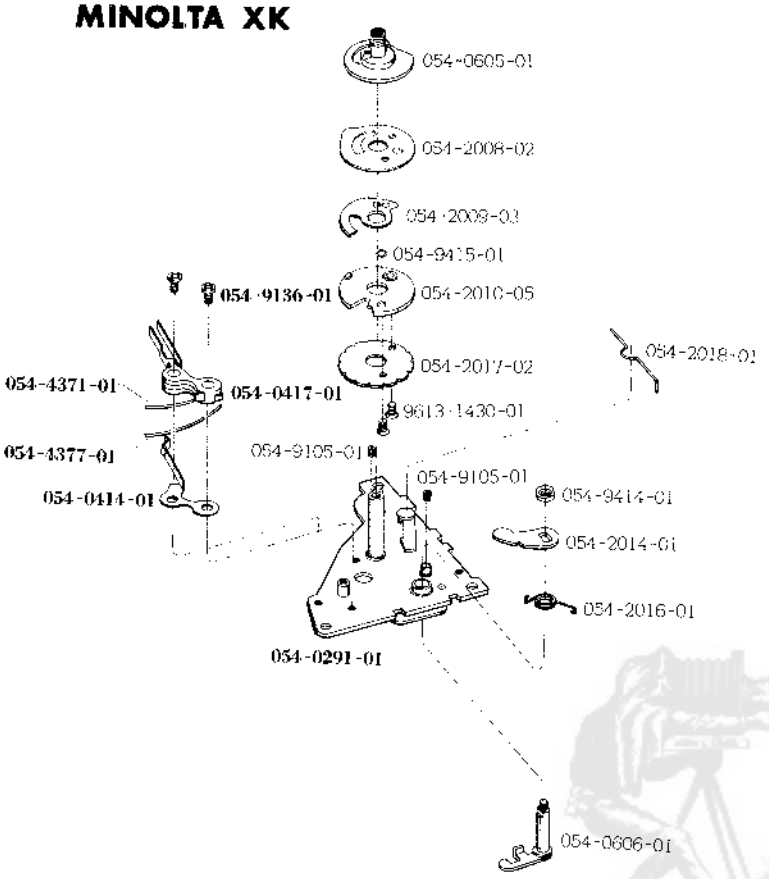

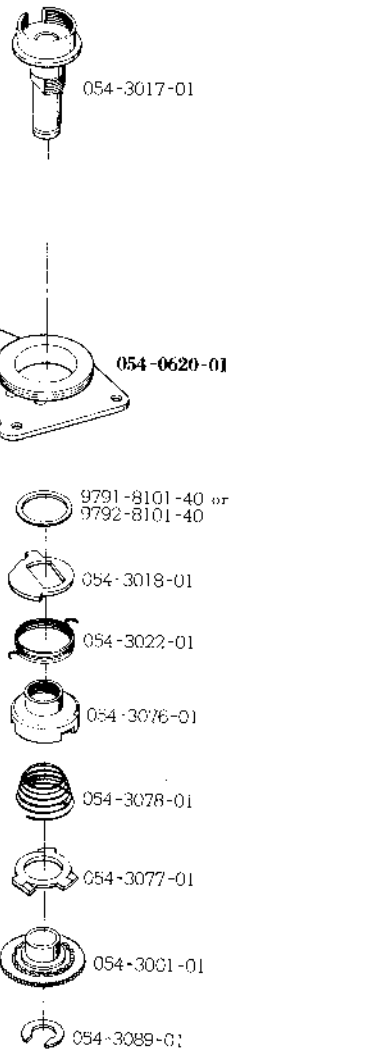

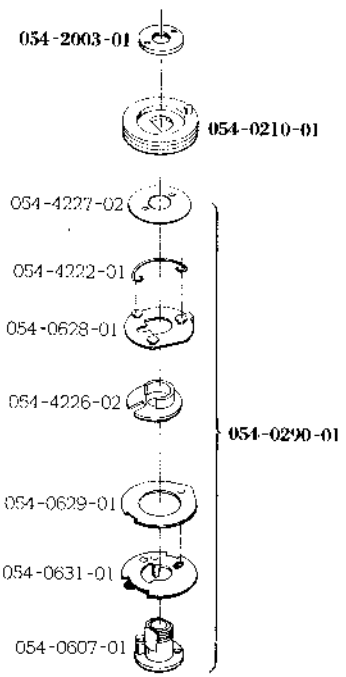

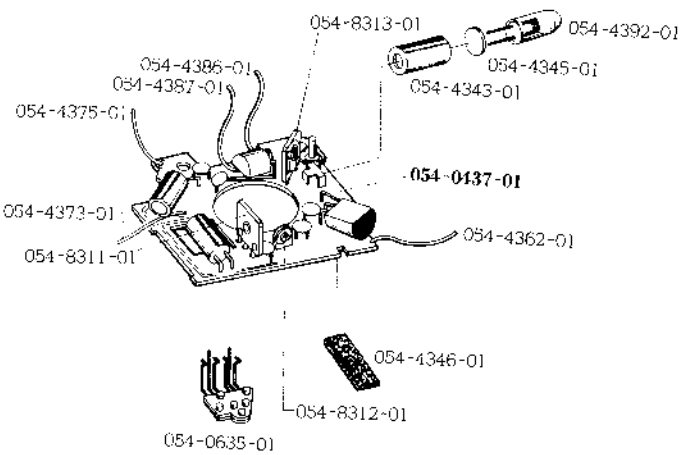

Part No. 部品番号	Part Name 部品名称	Unit 員数
054-0210-01	Speed dial operation ving set スピードダイヤル連動環	1
054-0290-01	Speed dial set スピードダイヤルセット	1
054-0607-01	Brush holder axis ブラシホルダー軸	1
054-0628-01	L.E clutch L.Eクラッチ	1
054-0629-01	L.E operation plate L.E操作板	1
054-0631-01	Brush 摺動ブラシ	1
054-4222-01	L.E clutch return spring L.Eクラッチ戻しスプリング	1
054-4226-02	L.E operation axis L.E操作板軸	1
054-4227-02	Brush holder axis nut ブラシホルダー軸ナット	1
054-0291-01	Shutter base plate-A set シャッター台板Aセット	1
054-0605-01	Cam axis カム軸	1
054-0606-01	B-Lever Bレバー	1
054-2008-02	R. switch cam R. スイッチカム	1
054-2009-03	B. support cam B補助カム	1
054-2010-05	B. cam Bカム	1
054-2014-01	B. set lever Bセットレバー	1
054-2016-01	B. set lever spring Bセットレバースプリング	1
054-2017-02	Click plate クリック板	1
054-2018-01	Click spring クリックばね	1
054-9105-01	Shutter curtain adjustment screw 幕軸調整ビス	2
054-9414-01	B. set lever nut Bセットレバーナット	1
054-9415-01	Washer ワッシャー	1
9613-1430-01	Phillips type screw 十字穴付き皿小ねじ	2
054-0414-01	R. switch operation spring set R-スイッチ作動ばねセット	1
054-0417-01	R. switch Isolation plate-A set R-スイッチ絶縁板Aセット	1
054-0437-01	Circuit base plate 回路基板セット	1
054-0635-01	M. switch 3 M.スイッチ3	1
054-4343-01	B.C lamp holder-B BCランプホルダーB	1
054-4345-01	B.C lamp packing-A BCランプ感光パッキンA	1
054-4346-01	B.C lamp packing-B BCランプ感光パッキンB	1
054-4362-01	Lead wire-A (Black ℓ=50mm) リード線A	1
054-4373-01	Lead wire-L (Red ℓ=20mm) リード線L	1
054-4375-01	Lead wire-N (Orange ℓ=115mm) リード線N	1
054-4386-01	Lead wire-S (Green ℓ=40mm) リード線S	1
054-4387-01	Lead wire-T (Blue ℓ=40mm) リード線T	1
054-4392-01	Checker lamp チェッカーランプ	1
054-8311-01	Variable resistor R5 (33KΩ) 半固定抵抗R5	1
054-8312-01	Variable resistor R6 (50KΩ) 半固定抵抗R6	1
054-8313-01	Variable resistor R15 (2.2KΩ) 半固定抵抗R15	1
054-0620-01	Winding base plate-A set 巻上台板Aセット	1
054-3001-01	Winding gear 巻上ギヤー	1
054-3017-01	Winding lever seat 巻上レバー座	1
054-3018-01	Winding lever limit plate 巻上レバー制限板	1
054-3022-01	Winding lever return spring 巻上レバー戻しスプリング	1
054-3076-01	Winding ring 巻上環	1
054-3077-01	Ratchet nail ラチェット爪	1
054-3078-01	Ratchet spring ラチェットスプリング	1
054-3089-01	Winding gear stop ring 巻上ギヤー止め輪	1
9791-8101-40	Washer ワッシャー	1
9792-8108-40	Washer ワッシャー	1
054-2003-01	Speed dial release ring nut スピードダイヤル連動環ナット	1
054-4371-01	Lead wire-J (Red ℓ=35mm) リード線J	1
054-4377-01	Lead wire-P (Yellow ℓ=135mm) リード線P	1
054-9136-01	Switch set screw スイッチ止めビス	2

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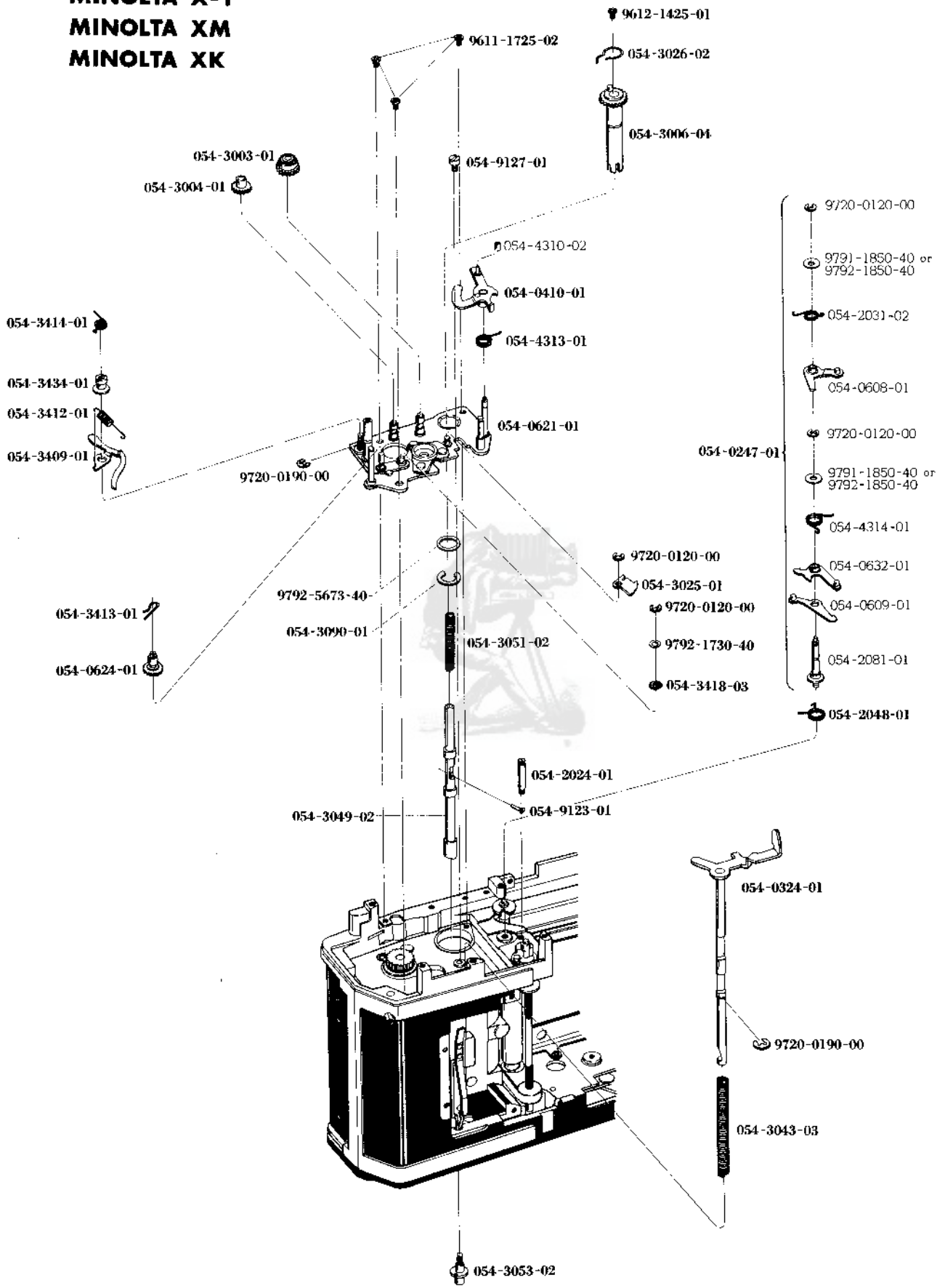

Part No. 部品番号	Part Name 部品名称	Unit 員数
054-0247-01	Release stop lever axis set 係止レバー軸セット	1
054-0608-01	Second shutter curtain stop lever 2幕係止レバー	1
054-0609-01	First shutter curtain stop lever 1幕係止レバー	1
054-0632-01	Switch 4 stop lever スイッチ4係止レバー	1
054-2031-02	Second shutter curtain stop lever spring 2幕係止レバースプリング	1
054-2081-01	Stop lever axis 係止レバー軸	1
054-4314-01	Switch 4 stop lever spring スイッチ4係止レバースプリング	1
9720-0120-00	Coupling washer 割ワッシャー	2
9791-1850-40	Washer ワッシャー	2
9792-1850-40	Washer ワッシャー	2
054-0324-01	Release axis set レリーズ軸セット	1
054-0410-01	Switch 4 lever set スイッチ4レバーセット	1
054-4310-02	Switch 4 isolation tube スイッチ4絶縁チューブ	1
054-0621-01	Winding base plate-B set 巻上台板Bセット	1
054-0624-01	Counter operation pin set カウンター駆動ピンセット	1
054-2024-01	Spring hanger-A スプリング掛けA	1
054-2048-01	Spring 一幕係止レバースプリング	1
054-3003-01	Idle gear-A アイドルギヤーA	1
054-3004-01	Idle gear-B アイドルギヤーB	1
054-3006-04	Sprocket gear upper side スプロケットギヤー上	1
054-3025-01	Reversing stop nail 逆転止め爪	1
054-3026-02	Reversing stop lever spring 逆転止めレバースプリング	1
054-3043-03	Shutter axis spring シャッター軸スプリング	1
054-3049-02	Sprocket axis スプロケット軸	1
054-3051-02	Sprocket spring スプロケットスプリング	1
054-3053-02	R button Rボタン	1
054-3090-01	Sprocket gear stop ring スプロケットギヤー止め輪	1
054-3409-01	Counter release lever カウンター解除レバー	1
054-3412-01	Operation lever spring 駆動レバースプリング	1
054-3413-01	Spring 駆動ピン抜止めスプリング	1
054-3414-01	Counter release lever spring カウンター解除レバースプリング	1
054-3418-03	Counter operation gear カウンター伝達ギヤー	1
054-3434-01	Counter release lever pressure カウンター解除レバー押え	1
054-4313-01	Switch 4 lever spring スイッチ4レバースプリング	1
054-9123-01	Clutch pin クラッチピン	1
054-9127-01	Release plate limitation screw レリーズ板制限ビス	1
9611-1725-02	Phillips type screw 十字穴付きなべ頭小ねじ	3
9612-1425-01	Phillips type screw 十字穴付きなべ頭小ねじ	1
9792-1730-40	Washer ワッシャー	1
9792-5673-40	Washer ワッシャー	1
9720-0120-00	Coupling washer 割ワッシャー	2
9720-0190-00	Coupling washer 割ワッシャー	2

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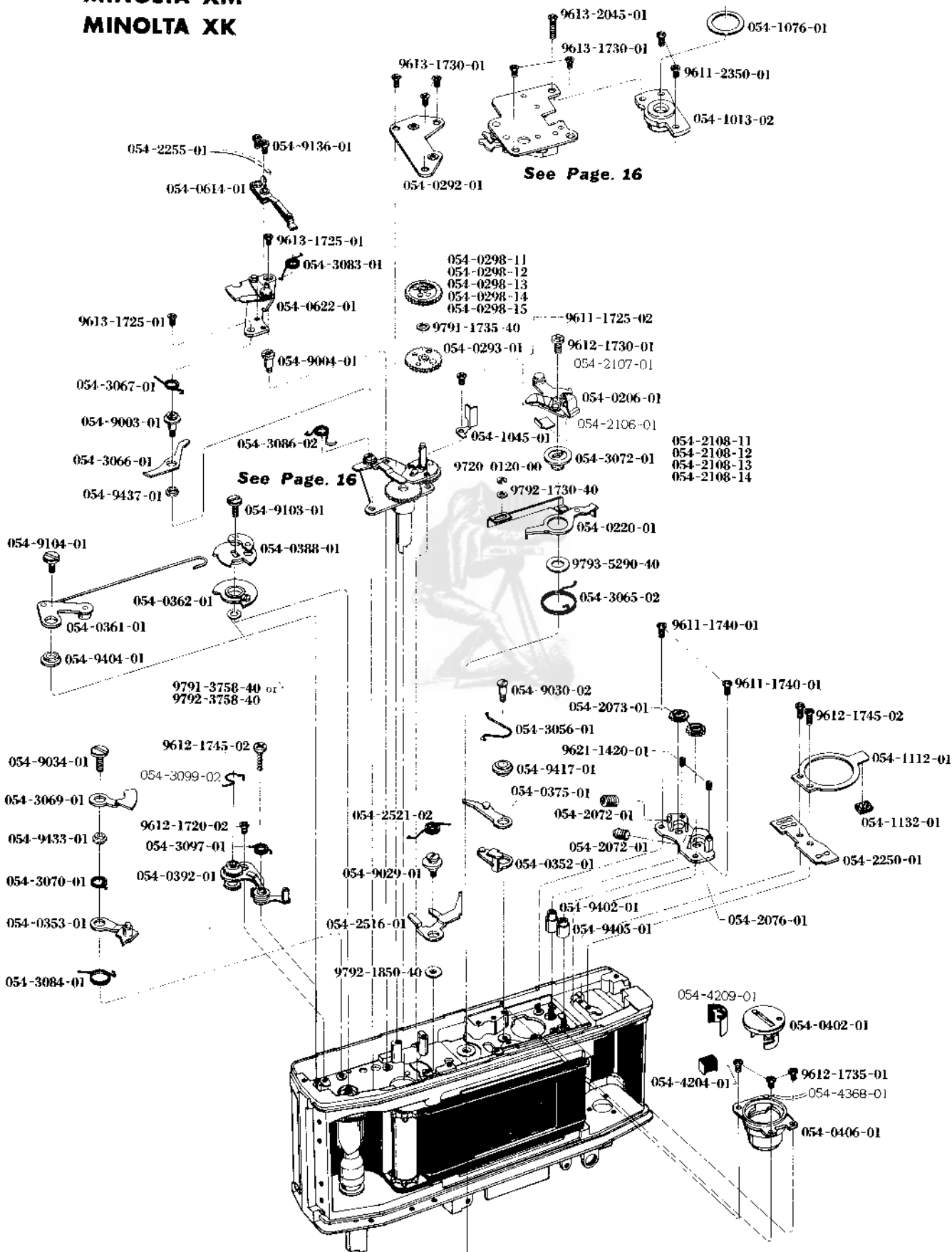
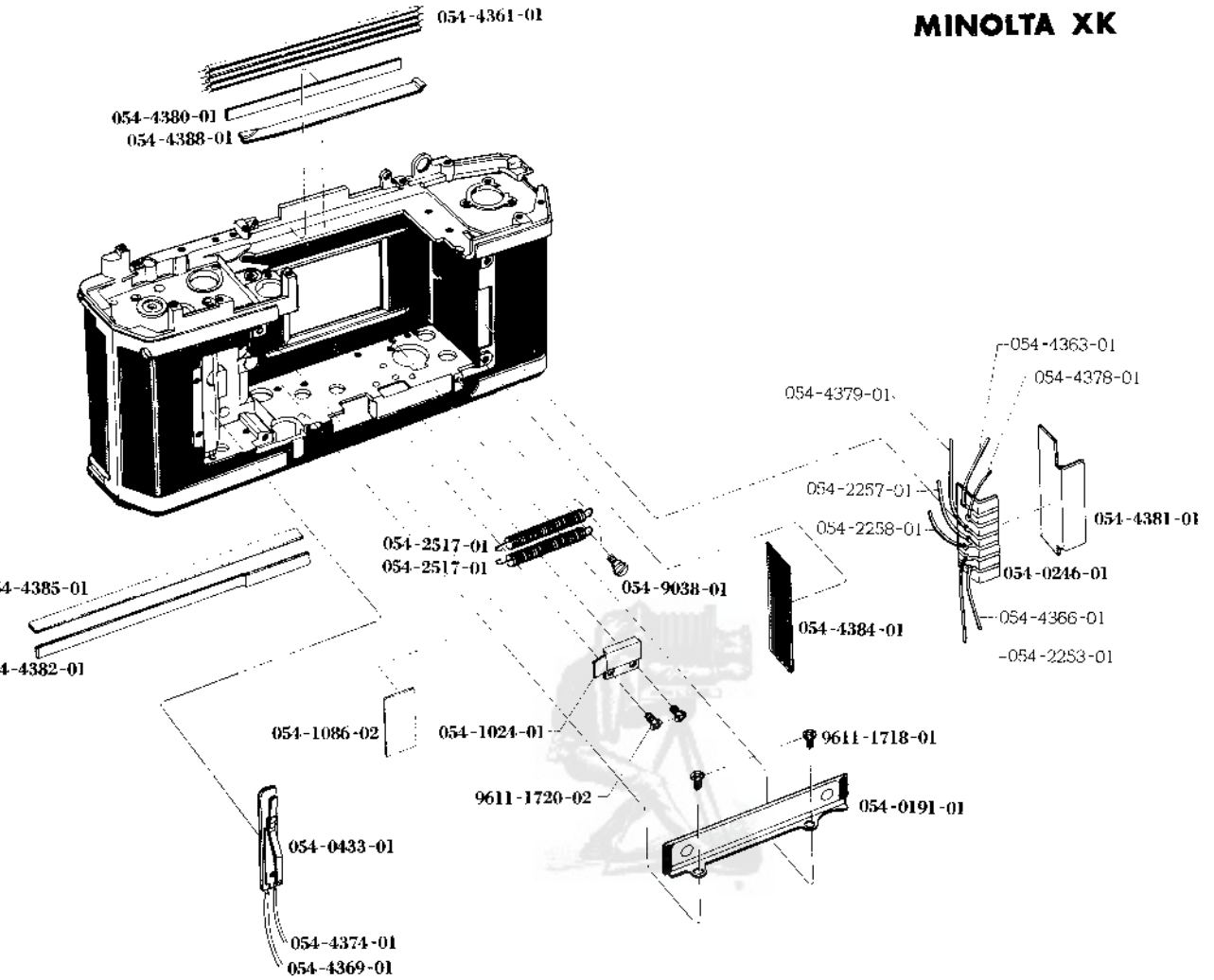
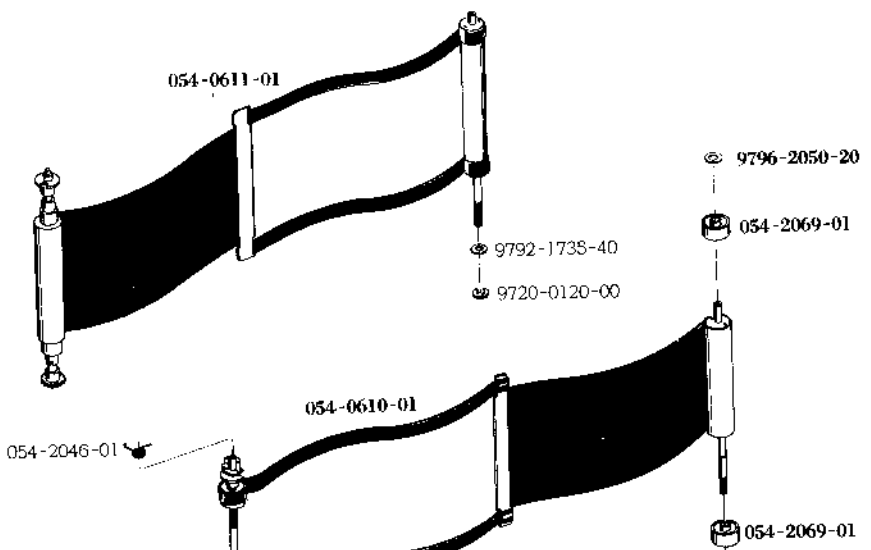


Part No. 部品番号	Part Name 部品名称	Unit 員数
054-0206-01	Charge lever-B set チャージレバー Bセット	1
054-2106-01	Brake rubber-A ブレーキばね用ゴムA	1
054-2107-01	Brake rubber-B ブレーキばね用ゴムB	1
054-0220-01	Charge lever-C set チャージレバーCセット	1
054-0292-01	Shutter base plate-B set シャッター台板Bセット	1
054-0293-01	Shutter variable gear set 変速ギヤーセット	1
054-0298-11	Operation gear set (no paint, 0) 駆動ギヤーセット	1
054-0298-12	Operation gear set (Purple, −0.05) 駆動ギヤーセット	1
054-0298-13	Operation gear set (White, −0.1) 駆動ギヤーセット	1
054-0298-14	Operation gear set (Red, −0.15) 駆動ギヤーセット	1
054-0298-15	Operation gear set (Black, −0.2) 駆動ギヤーセット	1
054-0352-01	Winding operation lever-A set 巻上解除操作レバーAセット	1
054-0353-01	Winding stop lever set 巻上係止レバーセット	1
054-0361-01	Charge lever-A set チャージレバーAセット	1
054-0362-01	S. button cam S釦解除カム	1
054-0375-01	Winding opeartion lever-B set 巻上解除操作レバーBセット	1
054-0388-01	Winding stopper plate set 巻上係止板セット	1
054-0392-01	Spool lock plate set スプールロック台板セット	1
054-3099-02	Spool lock release spring-B スプールロック解除スプリングB	1
054-0402-01	Battery case cap set 電池ケース蓋セット	1
054-4209-01	Battery holder index 電池ホルダー表示板	1
054-0406-01	Battery case-A set 電池ケースAセット	1
054-4368-01	Lead wire-G (Red ℓ−95mm) リード線G	1
054-0614-01	F. P. middle contact-B set FP中間接片Bセット	1
054-0622-01	Release stop base plate set 二重押し防止台板セット	1
054-1013-02	Tripod socket 三脚ねじ	1
054-1045-01	R. button shield R釦部遮光板	1
054-1076-01	Bottom cover shield packing 下カバー遮光パッキング	1
054-1112-01	Lock spring ロックばね	1
054-1132-01	Back cover packing 裏蓋開閉部パッキン	1
054-2072-01	Shutter curtain adjustment worm gear 幕スプリング調整ウオーム	2
054-2073-01	Shutter curtain adjustment gear 幕スプリング調整歯車	2
054-2076-01	Shutter curtain adjustment base スプリング筒下板	1
054-2108-11	First curtain adjustment seat (0.05t) 1幕ブレーキ調整シート	each 1 各1
054-2108-12	First curtain adjustment seat (0.15t) 1幕ブレーキ調整シート	each 1 各1
054-2108-13	First curtain adjustment seat (0.1 t) 1幕ブレーキ調整シート	each 1 各1
054-2108-14	First curtain adjustment seat (0.2 t) 1幕ブレーキ調整シート	each 1 各1
054-2250-01	Synchro cord lug plate シンクロコードラグ基板	1
054-2255-01	Synchro cord-E (Grey ℓ−105mm) シンクロコードE	1
054-2516-01	Kick lever キックレバー	1
054-2521-02	Kick lever return spring キックレバー戻しスプリング	1
054-3056-01	Winding release lever spring 巻上解除操作レバースプリング	1
054-3065-02	Charge lever-B spring チャージレバー Bスプリング	1
054-3066-01	Sprocket lock lever スプロケットロックレバー	1
054-3067-01	Sprocket lock lever spring スプロケットロックレバースプリング	1
054-3068-01	Charge lever-B axis チャージレバーB軸	1
054-3069-01	Shutter button stop lever S釦係止レバー	1
054-3070-01	Shutter button stop lever spring S釦係止レバースプリング	1
054-3072-01	Charge lever-C axis receiver チャージレバーC軸受	1
054-3083-01	Winding release spring 巻上解除スプリング	1
054-3084-01	Shutter button release spring シャッター釦解除スプリング	1
054-3086-02	Clutch lever spring クラッチレバースプリング	1
054-3097-01	Spool lock lever spring スプールロックレバースプリング	1
054-4204-01	Battery contact isolator 電池接片絶縁板	1
054-9003-01	Sprocket lock lever axis スプロケットロックレバー軸	1
054-9004-01	Release stop base screw 二軸押し防止板支柱	1
054-9029-01	Kick lever axis キックレバー軸	1
054-9030-02	Operation axis 巻上解除操作レバー軸	1
054-9034-01	Shutter button lever axis pressure S釦係止レバー軸押え	1
054-9103-01	Charge plate screw チャージ板押えビス	1
054-9104-01	Charge lever axis pressure チャージレバー軸押え	1
054-9136-01	Switch set screw スイッチ止めビス	2
054-9402-01	First curtain spring tube collar 1幕スプリング筒カラー	1
054-9404-01	Charge lever axis チャージレバー軸	1
054-9405-01	Second curtain spring tube 2幕スプリング筒カラー	1
054-9417-01	Operation lever collar 巻上解除操作レバーカラー	1
054-9433-01	Shutter button release lever axis シャッター釦解除レバー軸	1
054-9437-01	Sprocket lock lever collar スプロケットロックレバーカラー	1
9611-1725-02	Phillips type screw 十字穴付きなべ頭小ねじ	1
9611-1740-01	Phillips type screw 十字穴付きなべ頭小ねじ	2
9611-2350-01	Phillips type screw 十字穴付きなべ頭小ねじ	2
9612-1720-02	Phillips type screw 十字穴付きなべ頭小ねじ	1
9612-1730-01	Phillips type screw 十字穴付きなべ頭小ねじ	1
9612-1735-01	Phillips type screw 十字穴付きなべ頭小ねじ	3
9612-1745-02	Phillips type screw 十字穴付きなべ頭小ねじ	3
9613-1725-01	Phillips type screw 十字穴付き皿小ねじ	2
9613-1730-01	Phillips type screw 十字穴付き皿小ねじ	5
9613-2045-01	Phillips type screw 十字穴付き皿小ねじ	1
9621-1420-01	Screw 平先止めねじ	2
9791-1735-40	Washer ワッシャー	1
9791-3758-40	Washer ワッシャー	1
9792-1730-40	Washer ワッシャー	1

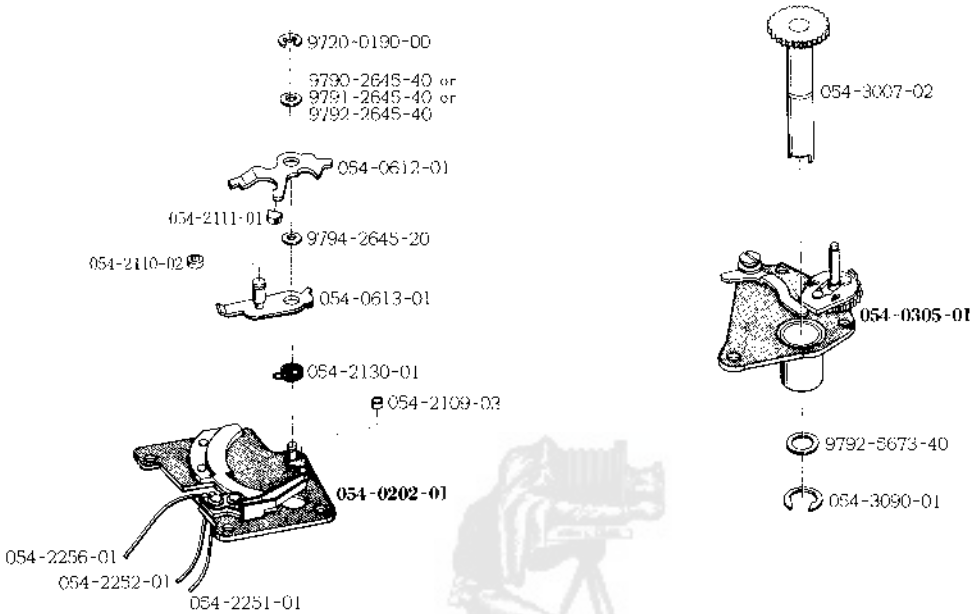
MINOLTA X-1
MINOLTA XM
MINOLTA XK





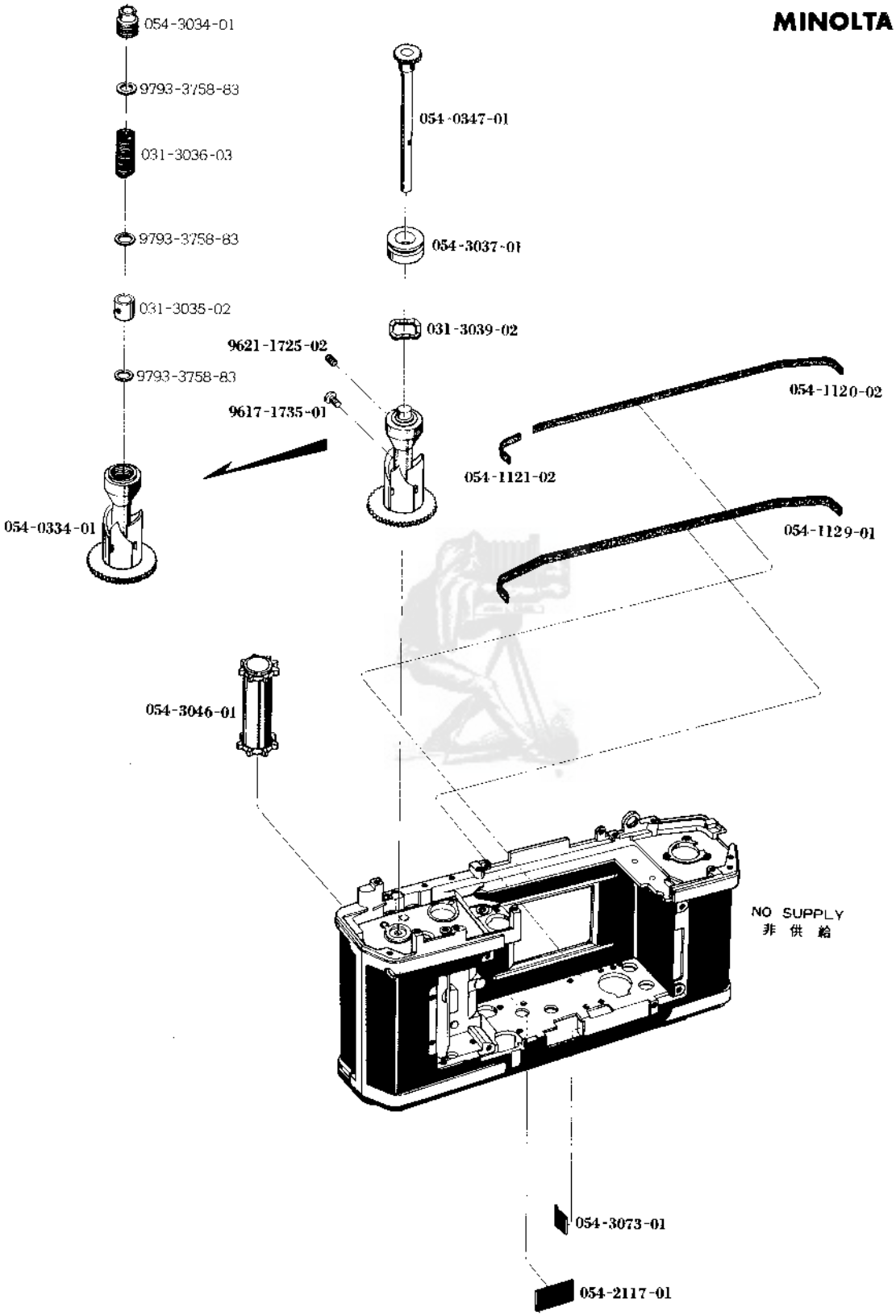
Part No. 部品番号	Part Name 部品名称	Unit 員数
054-0191-01	Body shield wall　ボデー遮光壁	1
054-0246-01	Synchro flexible base set　シンクロフレキシブル基板セット	1
054-2253-01	Synchro cord-C (White ℓ=30mm)　シンクロコードC	1
054-2257-01	Synchro cord-G (Pink ℓ=30mm)　シンクロコードG	1
054-2258-01	Synchro cord-H (Pink ℓ=65mm)　シンクロコードH	1
054-4363-01	Lead wire-B (Black ℓ=45mm)　リード線B	1
054-4366-01	Lead wire-E (Brown ℓ=65mm)　リード線E	1
054-4378-01	Lead wire-Q (Yellow ℓ=50mm)　リード線Q	1
054-4379-01	Lead wire-R (Yellow ℓ=50mm)　リード線R	1
054-0433-01	S1 base plate　S1ベースプレート	1
054-0610-01	First shutter curtain set　1幕軸セット	1
054-2046-01	Return spring　ゲリカム復帰スプリング	1
054-0611-01	Second shutter curtain set　2幕軸セット	1
9720-0120-00	Coupling washer　割ワッシャー	1
9792-1735-40	Washer　ワッシャー	1
054-1024-01	Spring cover　スプリング覆い	1
054-1086-02	Seatter　シャッター幕傷防止布	1
054-2069-01	Second curtain roller　2幕ローラー	2
054-2517-01	M.P return spring　MPリターンスプリング	2
054-4361-01	Ribbon cable　リボンケーブル	1
054-4369-01	Lead wire-H (Red ℓ=75mm)　リード線H	1
054-4374-01	Lead wire-M (Orange ℓ=170mm)　リード線M	1
054-4380-01	Cord cohesion tape upper side-A　コード用粘着テープ上A	1
054-4381-01	Flexible base cohesion tape　フレキシブル基板用粘着テープ	1
054-4382-01	Cord cohesion tape down side　コード用粘着テープ下	1
054-4384-01	Synchro cord cohesion tape-A　シンクロリード線用粘着テープA	1
054-4385-01	Synchro cord cohesion tape-B　シンクロリード線用粘着テープB	1
054-4388-01	Cord cohesion tape upper side-B　コード用粘着テープ上B	1
054-9038-01	M.P return spring hanger　MPリターンスプリング掛け	1
9611-1718-01	Phillips type screw　十字穴付きなべ頭小ねじ	2
9611-1720-02	Phillips type screw　十字穴付きなべ頭小ねじ	2
9720-0120-00	Coupling washer　割ワッシャー	1
9792-1735-40	Washer　ワッシャー	1
9796-2050-20	Washer　ワッシャー	1

MINOLTA X-1
MINOLTA XM
MINOLTA XK



Part No. 部品番号	Part Name 部品名称	Unit 員数
054-0202-01	Brake base plate set ブレーキ台板セット	1
054-0612-01	Brake lever-A set ブレーキレバーAセット	1
054-2111-01	X contact-B isolation cover X接片B絶縁カバー	1
054-0613-01	Brake lever-B set ブレーキレバーBセット	1
054-2110-02	Rubber 解除ピン消音ゴム	1
054-2109-03	Stopper rubber ストッパー消音ゴム	1
054-2130-01	Brake lever spring ブレーキレバースプリング	1
054-2251-01	Synchro cord-A (White ℓ=90mm) シンクロコードA	1
054-2252-01	Synchro cord-B (White ℓ=70mm) シンクロコードB	1
054-2256-01	Synchro cord-F (Pink ℓ=75mm) シンクロコードF	1
9720-0190-00	Coupling washer 割ワッシャー	1
9790-2645-40	Washer ワッシャー	1
9791-2645-40	Washer ワッシャー	1
9792-2645-40	Washer ワッシャー	1
9794-2645-20	Washer ワッシャー	1
054-0305-01	Sprocket base plate set スプロケット台板セット	1
054-3007-02	Sprocket gear under side スプロケットギヤー下	1
054-3090-01	Sprocket gear stopper ring スプロケットギヤー止め輪	1
9792-5673-40	Washer ワッシャー	1

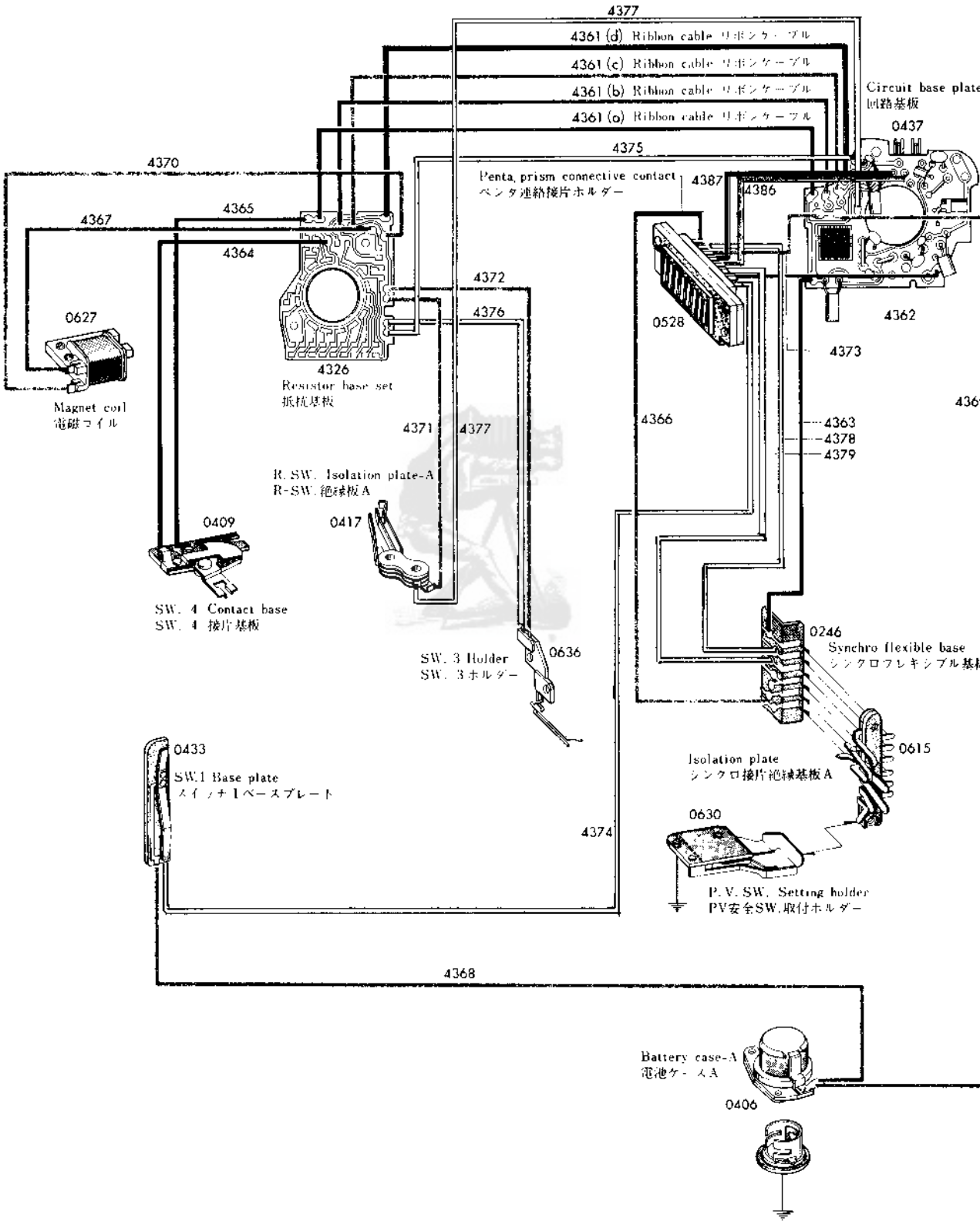
MINOLTA X-1
MINOLTA XM
MINOLTA XK



Part No. 部品番号	Part Name 部品名称	Unit 員数
054-0334-01	Spool set スプールセット	1
054-3034-01	Spool adjustment screw スプール重さ調節ねじ	1
031-3035-02	Spool ring スプールリング	1
031-3036-03	Slide spring すべりスプリング	1
9793-3758-83	Washer ワッシャー	3
054-0347-01	Spool axis set スプール軸セット	1
054-1120-02	Strap hanger seat left side 吊環座左	1
054-1121-02	Front cover 前枠蓋	1
054-1129-01	Back cover light shield sponge 裏蓋部遮光パッキン	1
054-2117-01	X contact isolation tape X接片絶縁テープ	1
054-3037-01	Decoration ring 飾りリング	1
031-3039-02	Decoration ring receiver spring 飾りリング受けスプリング	1
054-3046-01	Sprocket スプロケット	1
054-3073-01	Charge lever-B seat チャージレバーB消音シート	1
9617-1735-01	Phillips type screw 十字穴付き丸皿頭小ねじ	1
9621-1725-02	Screw 平先止めねじ	1

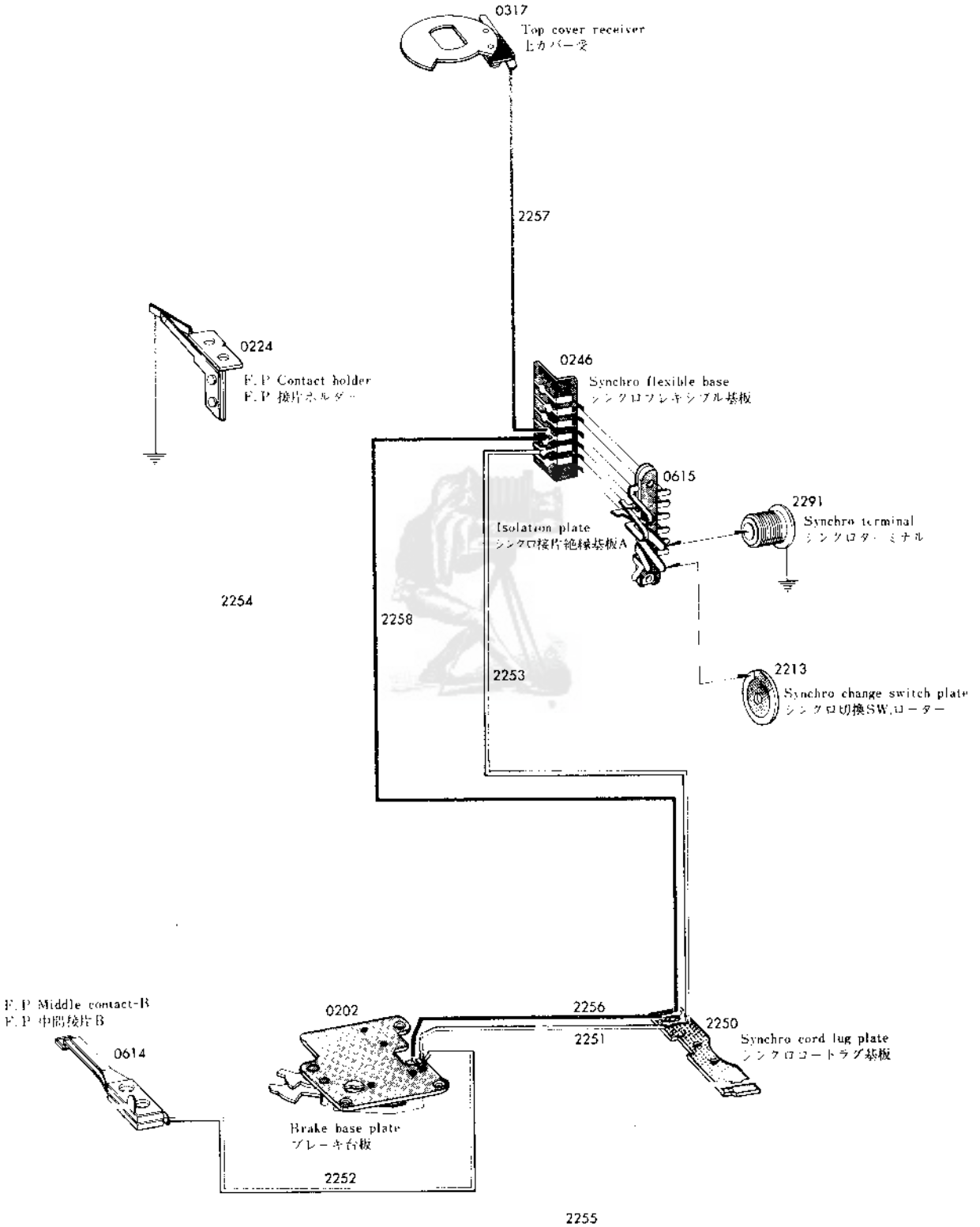
Switing Circuit Wiring Schematic Diagram

(スイッチング回路立体配線図)

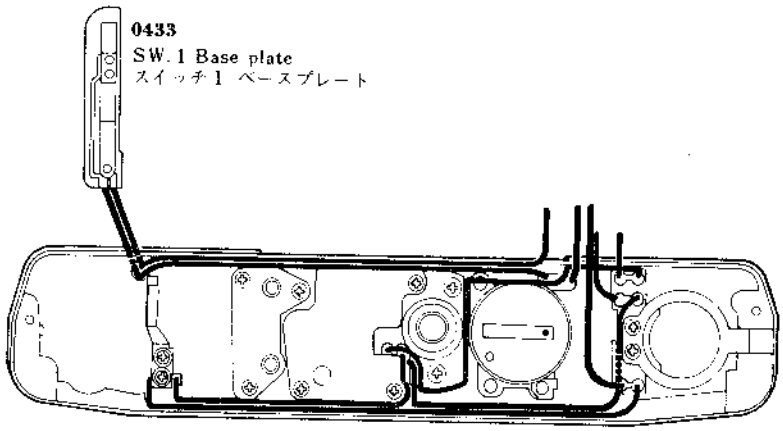


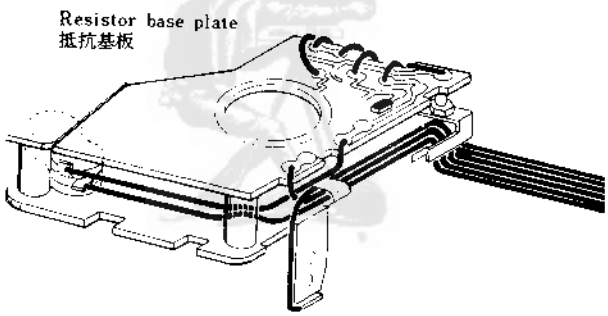
Sync. Circuit Wiring Schematic Diagram

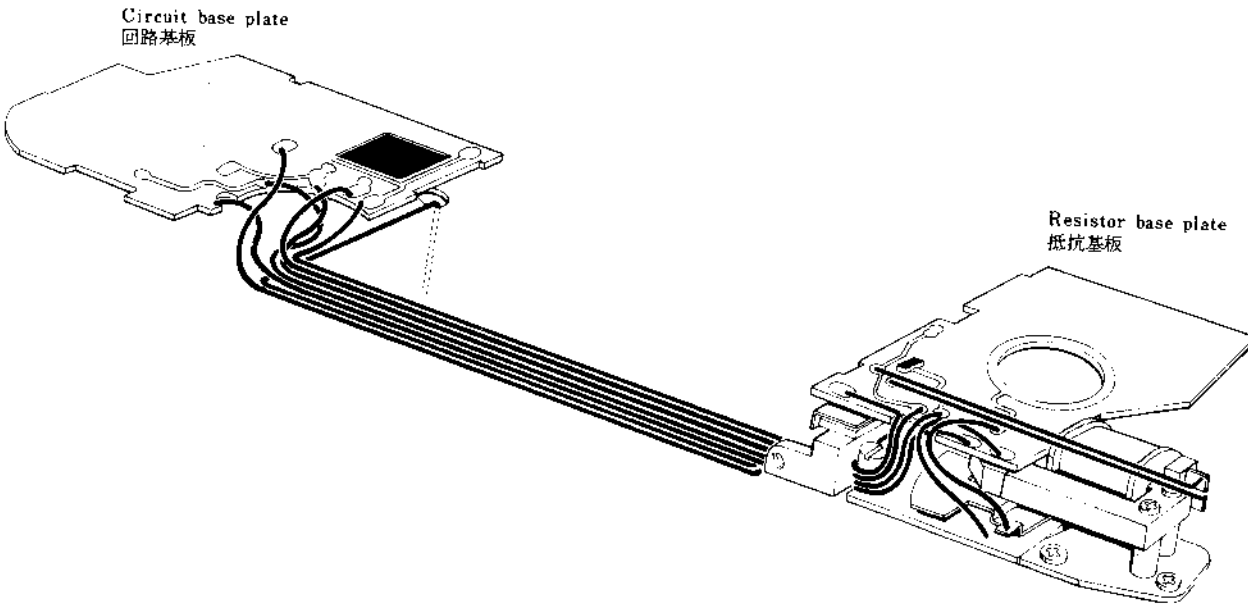
(シンクロ回路立体配線図)



How to put in order circuit
配線処理方法







DISASSEMBLY

分　解　編

How to Disassemble

A. Body external 1
B. Front frame, mirror box and back cover block 3
C. Front frame 7
D. Mirror box 9
E. Film counter, magnet and shutter base plate 15
F. Winding gear base plate, stop lever axis and release axis 17
G. Brake and sprocket gear base plate 19
H. Shutter curtain 21
I. Charge lever mechanism 23
J. Circuit base plate and back cover lock 25
K. Spool gear 27
L. Shutter, winding gear base plate and shutter speed dial 29
M. Brake and sprocket gear base plate 31

ボデー分解編

A. ボデー外装部品 1
B. 前枠・ミラーボックス・裏蓋ブロック 3
C. 前　　枠 7
D. ミラーボックス 9
E. カウンター・マグネット・シャッター台板 15
F. 巻上台板・係止レバー軸・レリーズ軸 17
G. ブレーキ・スプロケット台板 19
H. シャッター幕 21
I. チャージレバー機構 23
J. 回路基板・裏蓋ロック 25
K. スプール 27
L. シャッター・巻上台板・シャッターダイヤル 29
M. ブレーキ・スプロケット台板 31

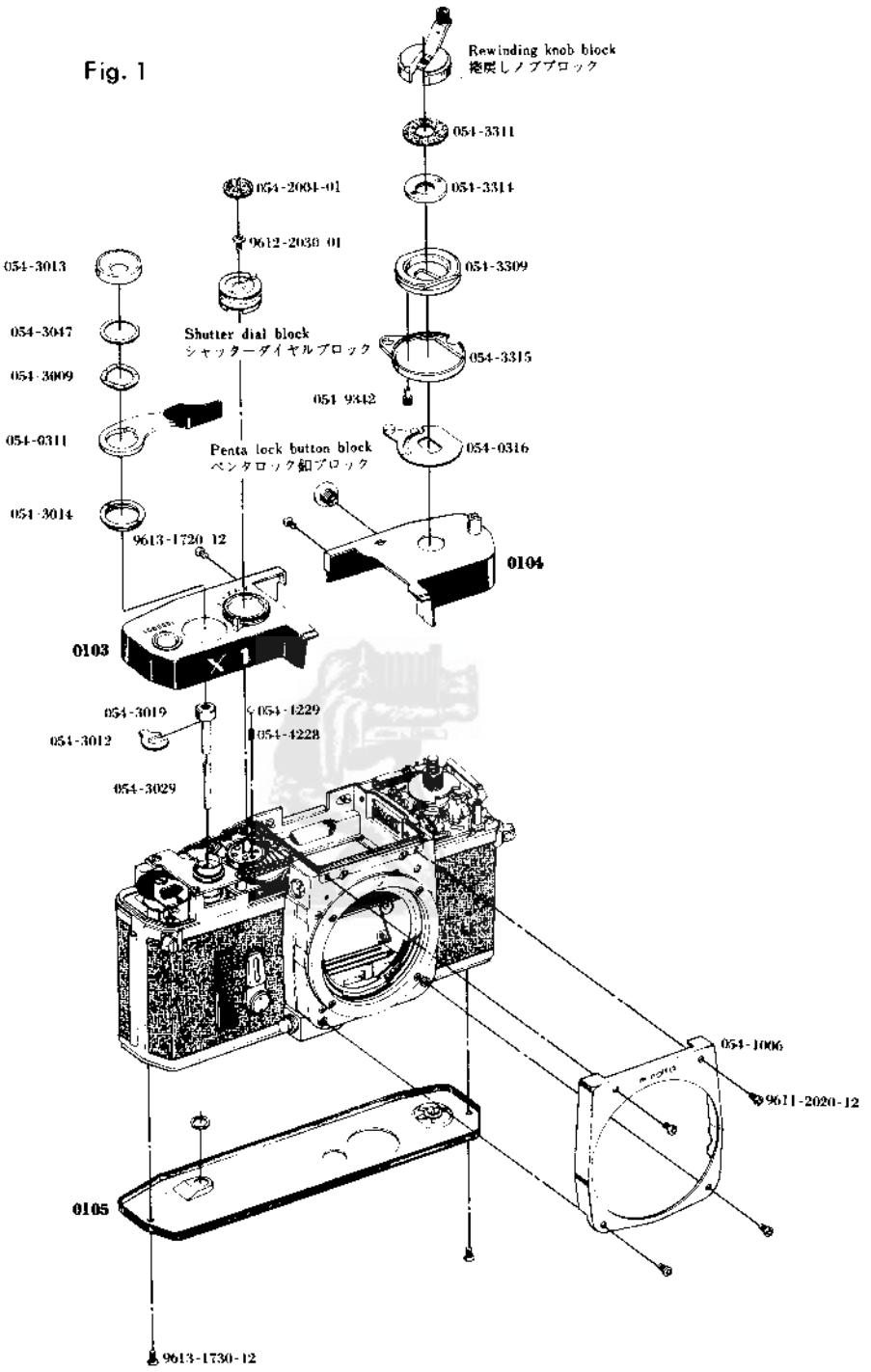
A. Disassemble the Body external

1. Remove 9613-1720-12.
2. Remove 3013 by using the special tool (054-3013-77) provided.
3. Remove 3047, 3009, 0311, 3012, 3019 and 3029 in that order.
4. Remove the reverse screw, 3014, by using the universal compass provided. and take off 0103.
5. Remove the bonded 2004 and 9612-2030-01 and take off the shutter dial block. Wxen When removing the shutter dial block, do not lose 4228 and 4229.
6. Remove the winding knob block and the bonded 3311.
7. Remove 3314 with the universal compass provided, and take off 3309, 3315, 0316 and 9342.
8. Remove the penta lock button block by using the special tool (054-9024-77) provided.
9. Remove 9613-1720-12 and 0104.
10. Loosen the two 9613-1730-12 and remove 0105.
11. Loosen the four 9611-2020-12 and remove 1006.

A. ボデー外装部品分解要領

1. 9613-1720-12を外す。
2. 専用治工具（054-3013-77）を使用し，3013を取外す。
3. 3047，3009，0311，3012，3019，3029を取外す。
4. 万能回螺器を使用し逆ねじ3014を取外し0103を取外す。
5. 2004のり付けをはがし，9612-2030-01を外し，シャッターダイヤルブロックを取外す。取外し時点4228，4229をなくさぬ様注意。
6. 捲戻しノブブロックを取外し，3311のり付けを外す。
7. 万能回螺器を使用し，3314を外し3309，3315，0316，9342を取外す。
8. 専用治工具（054-9024-77）を使用し，ペンタロック釦ブロックを取外す。
9. 9613-1720-12を外し，0104を取外す。
10. 9613-1730-12　2本を外し，0105を取外す。
11. 9611-2020-12　4本を外し，1006を取外す。

Fig. 1


Rewinding knob block
巻戻しノブブロック
054-3311
054-3314
054-2004-01
9612-2030 01
054-3309
054-3013
054-3047
Shutter dial block
シャッターダイヤルブロック
054-3315
054-3009
054 9342
054-0311
Penta lock button block
ペンタロック釦ブロック
054-0316
054-3014
9613-1720 12
0104
0103
X 1
054-3019
054-1229
054-3012
054-1228
054-3029
054-1006
9611-2020-12
0105
9613-1730-12

B. Disassemble the Front plate, Mirror box and back cover block

1. Remove 9121, 1039 and 1038.
2. Remove 1015.
3. Loosen the four 9125 and remove 4231 and 4230.
4. Unsolder the two lead wires of 0636 as shown in Fig. 3. as arrow mark.
5. Remove the four 9129.
6. Remove the two 9612-1750-02 and move 0528 slightly.
7. Remove 5217. as show in Fig. 4.
8. Remove the mirror box and the front frame block from the body.
9. Remove the bonded 1019 and the four 9613-1725-02 and take out the back cover block.

B. 前枠・ミラーボックス・裏蓋ブロック分解要領

1. 9121を外し，1039，1038を取外す。
2. 1015を取外す。
3. 9125　4本を外し，4231，4230を取外す。
4. 0636　リード線2本（Fig. 3矢印）の半田付けを外す。
5. 9129　4本を外す。
6. 9612-1750-02　2本を外し，0528をずらせておく。
7. 5217を外す。（Fig. 4）
8. 次にボデーよりミラーボックス及び前枠ブロックを取外す。
9. 1019のり付けをはがし，9613-1725-02　4本を外し，裏蓋ブロックを取外す。

Fig. 2

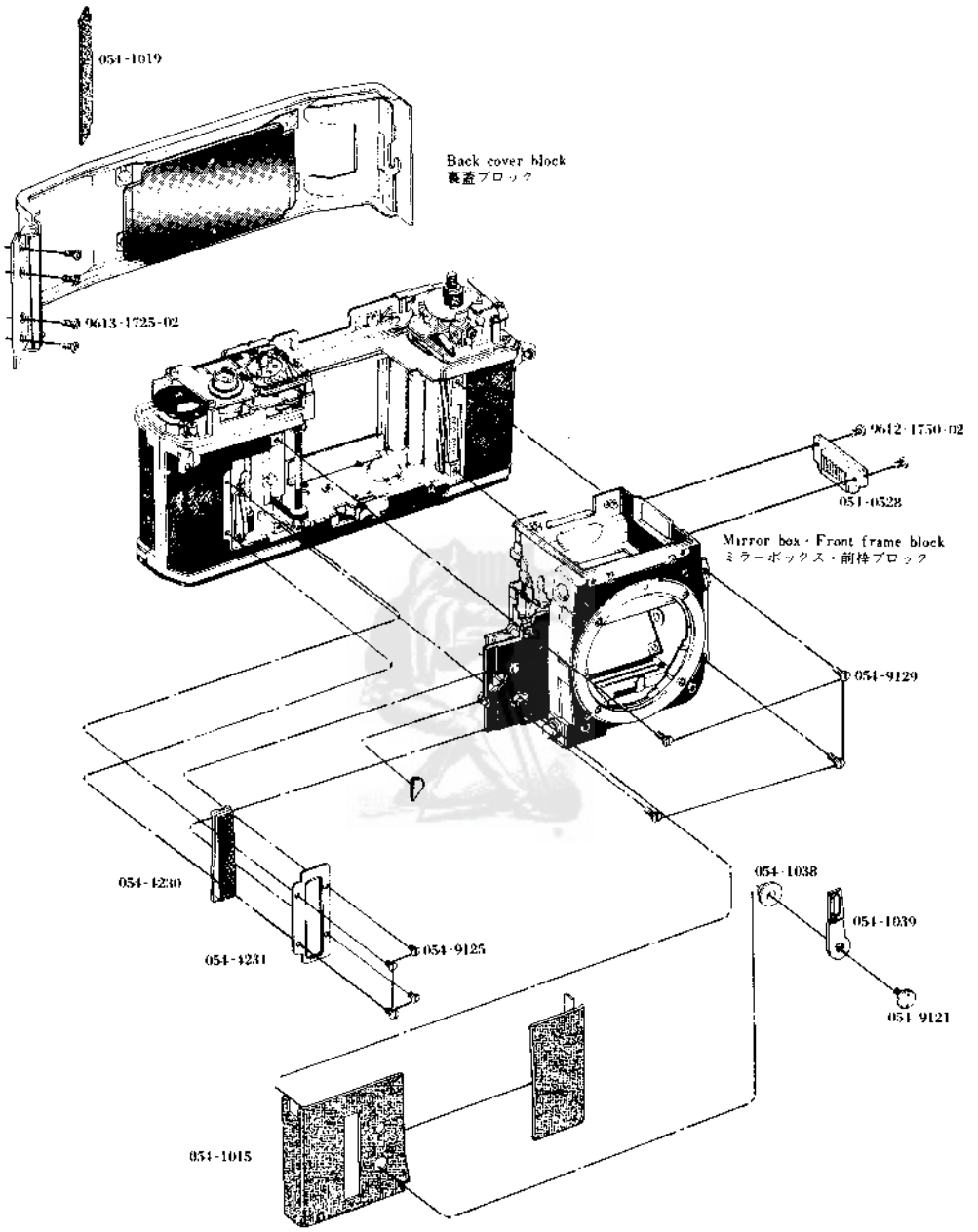


Fig. 3

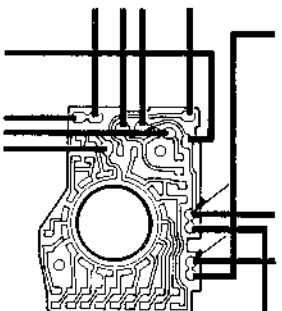
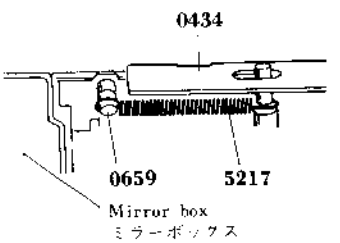


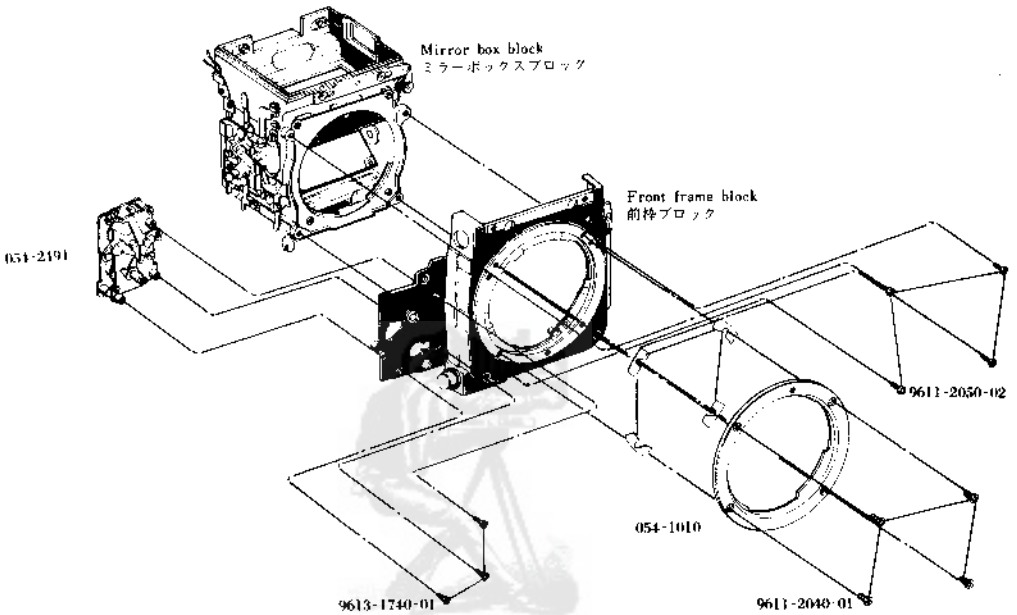
Fig. 4



10. Remove the four 9611-2040-04 and 1010.
11. Remove the four 9611-2050-02 and unlock the front frame block and the mirror box.
    Caution: When removing the front frame block and the mirror box, be careful not to bend the respective switch contacts.
12. Loosen the three 9613-1740-01 and remove 2491.

10. 9611-2040-04　4本を外し，1010を取外す。
11. 9611-2050-02　4本を外し，前枠ブロック，ミラーボックスブロックを取外す。
    注意：前枠，及びミラーボックスを分離する際，各SW.接片を曲げない様に注意する。
12. 9613-1740-01　3本を外し，2491を取外す。

Fig. 5


Mirror box block
ミラーボックスブロック
Front frame block
前枠ブロック
054-2191
9611-2050-02
054-1010
9613-1740-01
9611-2040-01

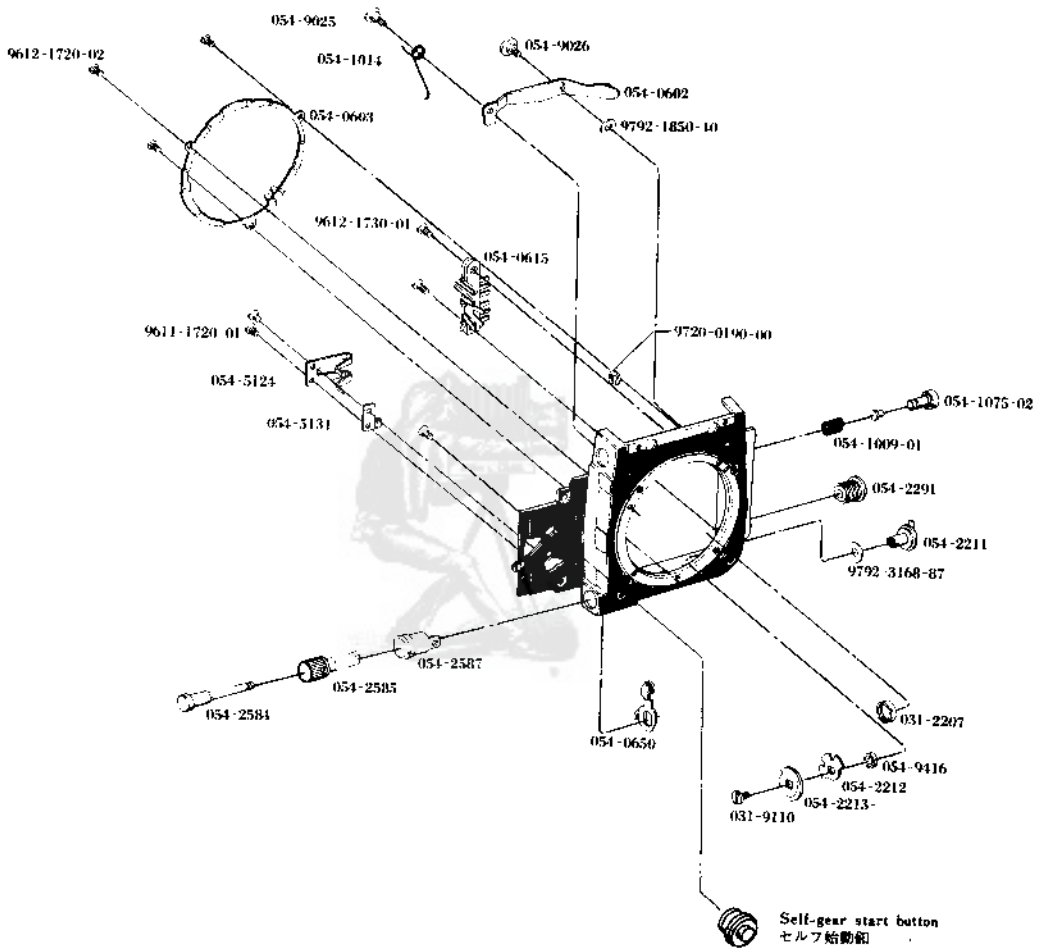
C. Disassemble the Front fram

1. 0650, 2584 and 2585 will be removed condition Page. 6, as show in Fig. 5.
2. Remove the two 9612-1730-01 and 0615.
3. Remove the four 9611-1720-01, 5124 and 5131.
4. Remove 9025 and 1014.
5. Remove 9026, 0602 and 9792-1850-40 in that order.
6. Remove the three 9612-1720-02 and 0603.
7. Remove 9720-0190-00, 1009 and 1075.
8. Remove 9110, 2213, 2212, 9416, 9792-3168-87 and 2211 in that order.
9. Remove 2207 and 2291 by using the special tool (012-6007-77) provided.
10. Remove the self-timer operation button by using the special tool (026-1041-77) provided.

C. 前枠分解要領

1. 0650, 2584, 2585はP. 6, Fig. 5の状態で外れる。
2. 9612-1730-01 2本を外し, 0615を取外す。
3. 9611-1720-01 2本を外し, 5124, 5131を取外す。
4. 9025を外し, 1014を取外す。
5. 9026を外し, 0602, 9792-1850-40を取外す。
6. 9612-1720-02 3本を外し, 0603を取外す。
7. 9720-0190-00を外し, 1009, 1075を取外す。
8. 9110を外し, 2213, 2212, 9416, 9792-3168-87, 2211を取外す。
9. 専用治工具 (012-6007-77) を使用し, 2207を外し, 2291を取外す。
10. 専用治工具 (026-1041-77) を使用し, セルフ始動ボタンを取外す。

Fig. 6


054-9025
9612-1720-02
054-1014
054-9026
054-0602
9792-1850-10
054-0603
9612-1730-01
054-0615
9611-1720-01
9720-0190-00
054-5124
054-5131
054-1075-02
054-1609-01
054-2291
054-2211
9792-3168-87
054-2587
054-2585
054-2584
031-2207
054-0650
054-9416
054-2212
054-2213-
031-9110
Self-gear start button
セルフ始動鉤

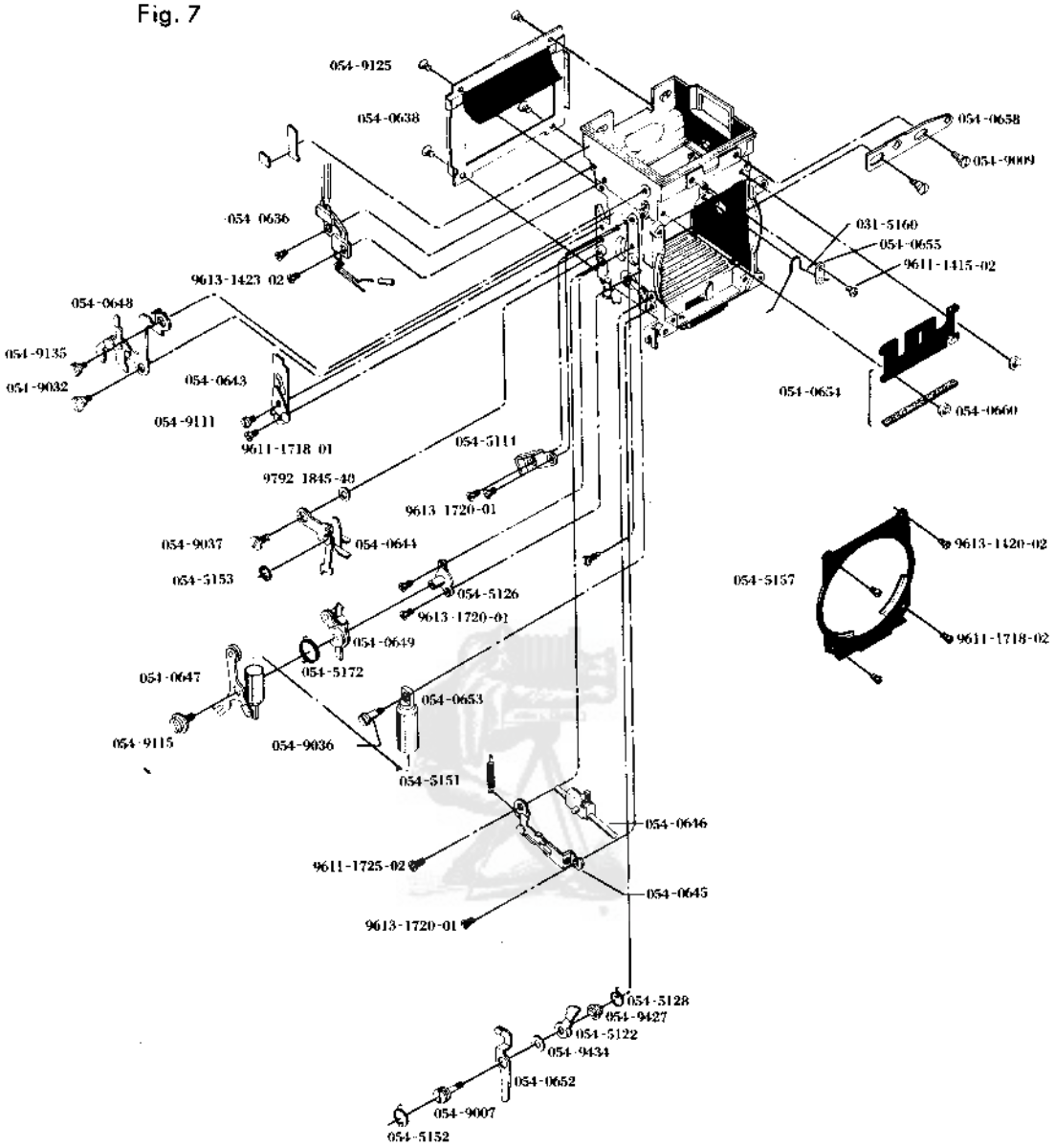
D. Disassemble the Mirror box

1. Remove the two 9613-1420-02, the two 9611-1718-02, 0660, 5157 and 0654 in that order.
2. Remove 9611-1415-02, 0655 and 5160.
3. Remove the two 9009 and 0658. Then remove the four 9125 and 0638.
4. Remove the two 9613-1423-02 and 0636.
5. Remove 5151, 5153, 9037, 0644 and 9792-1845-40 in that order.
6. Remove 9115, 0647, 5172 and 0649.
7. Remove 9036 and 0653.
8. Remove 9032, 9135 and 0648.
9. Remove the two 9613-1720-01 and 5114.
10. Remove 5152, 9007, 0652, 9434, 5122, 9427 and 5120.
11. Remove 9611-1725-02, 9613-1720-01, 0645 and 0646.
12. Remove the two 9613-1720-01 and 5126.
13. Remove 9111, 9611-1718-01 and 0643 in that order.

D. ミラーボックス分解要領

1. 9613-1420-02　2本，9611-1718-02　2本を外し，5157，0660，0654を取外す。
2. 9611-1415-02を外し，0655，5160を取外す。
3. 9009　2本を外し，0658を取外す。9125　4本を外し，0638を取外す。
4. 9613-1423-02　2本を外し，0636を取外す。
5. 5151，5153，9037を外し，0644，9792-1845-40を取外す。
6. 9115を外し，0647，5172，0649を取外す。
7. 9036を外し，0653を取外す。
8. 9032，9135を外し，0648を取外す。
9. 9613-1720-01　2本を外し，5114を取外す。
10. 5152，9007を外し，0652，9434，5122，9427，5128を取外す。
11. 9611-1725-02，9613-1720-01を外し，0645，0646を取外す。
12. 9613-1720-01　2本を外し，5126を取外す。
13. 9111，9611-1718-01を外し，0643を取外す。

Fig. 7


054-0125
054-0638
054-0636
9613-1423 02
054-0648
054-9135
054-9032
054-0643
054-9111
9611-1718 01
9792 1845-40
054-5111
9613 1720-01
054-9037
054-0644
054-5153
054-5126
9613-1720-01
054-0649
054-5172
054-0647
054-9115
054-9036
054-0653
054-5151
054-0646
9611-1725-02
054-0645
9613-1720-01
054-5128
054-9427
054-5122
054-9434
054-0652
054-9007
054-5152
054-0658
054-9009
031-5160
054-0655
9611-1415-02
054-0654
054-0660
054-5157
9613-1420-02
9611-1718-02

14. Remove 9101, 5210 and 5214.
15. Remove 9121, 9108, 0657 and 9791-3142-40 in that order.
16. Remove the two 9009 and 0659.
17. Remove the two 9611-1718-02 and 0656.
18. Remove 4357, 9039, 0633 and 9434.
19. Remove 9117, 9010 and 0651.
20. Remove 9111, 9611-1718-01 and 0642.
21. Remove 0640, 0639.
22. Remove 5175, 9011, 9116 and 0641 in that order.
23. Loosen the four 9613-1720-11 and remove 5007 and 5006.

14. 9101を外し，5210，5214を取外す。
15. 9120，9108を外し，0657，9791-3142-40を取外す。
16. 9009　2本を外し，0659を取外す。
17. 9611-1718-02　2本を外し，0656を取外す。
18. 4357，9039を外し，0633，9434を取外す。
19. 9117，9010を外し，0651を取外す。
20. 9111，9611-1718-01を外し，0642を取外す。
21. 0640，0639を取外す。
22. 5175，9011，9116を外し，0641を取外す。
23. 9613-1720-11　4本を外し，5007，5006を取外す。

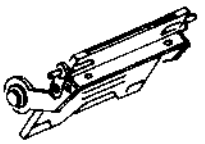
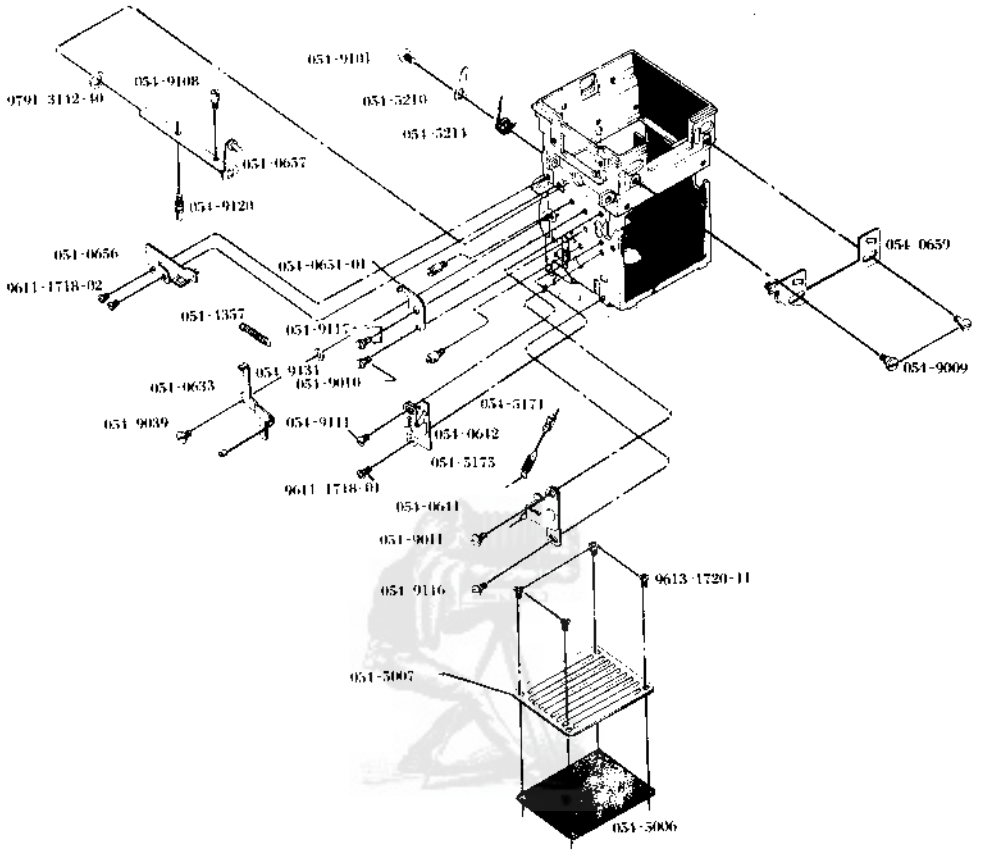

0640, 0639

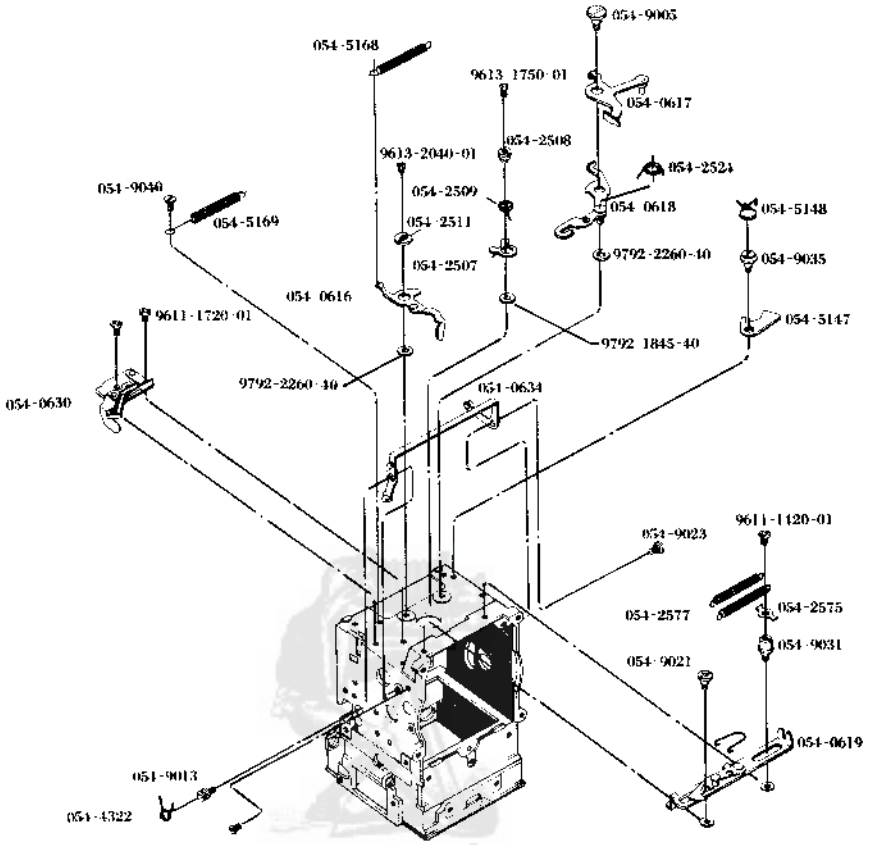
Fig. 8


051-9101
051-5210
051-5211
0791 3112-40
051-9108
051-0657
051-9120
051-0656
9611-1718-02
051-0651-01
051-1357
051-9115
051-9131
051-9010
051-0633
051-9039
051-9111
051-5171
051-0642
051-5173
9611 1718-01
051-0611
051-9011
051-9116
9613-1720-11
051-5007
051-5006
054-0659
054-9009

24. Loosen the two 2577 and 9611-1420-01, and remove 2575.
25. Remove 9031.
26. Loosen the reverse screw, 9021, by using the special tool (054-9021-77) provided. and 0619. Remove them.
27. Remove the two 9611-1720-01 and 0630.
28. Loosen 9613-1750-01 and remove 2508, 2509, 2507 and 9792-1845-40.
29. Remobe 9040, 5168 and 5169.
30. Remove 2524, 9005, 0617, 0618 and 9792-2260-40 in that order.
31. Remove 9613-2040-01, 2511, 0616 and 9792-2260-40.
32. Remove 5148, 9035 and 5147.
33. Remove 4322, 9013 and 9023, and take off 0634.

24. 2577　2本，9611-1420-01を外し，2575を取外す。
25. 9031を取外す。
26. 専用治工具（054-9021-77）を使用し，9021（逆ねじ）を外し，0619を取外す。
27. 9611-1720-01　2本を外し，0630を取外す。
28. 9613-1750-01を外し，2508，2509，2507，9792-1845-40を取外す。
29. 9040を外し，5168，5169を取外す。
30. 2524，9005を外し，0617，0618，9792-2260-40を取外す。
31. 9613-2040-01を外し，2511，0616，9792-2260-40を取外す。
32. 5148，9035を外し，5147を取外す。
33. 4322，9013，9023を外し，0634を取外す。

Fig. 9


054-9005
054-5168
9613-1750-01
054-0617
9613-2040-01
054-2508
054-2524
054-9040
054-2509
054-5148
054-5169
054-2511
054 0618
9792-2260-40
054-2507
054-9035
054 0616
9611-1720-01
9792 1845-40
054-5147
9792-2260-40
054-0634
054-0630
9611-1120-01
054-9023
054-2577
054-2575
054-9031
054-9021
054-0619
054-9013
054-4322

E. Disassemble the Film counter, Magnet and Shutter base plate

1. Loosen the two 9612-1730-01 and 9612-1780-01, and remove the winding base plate block and 9410.
   Caution: For disassembly of the winding base plate block, see Page. 29, L 7～8.
2. Remove 9102, 3402, 0623 and 9792-2645-40.
3. Unsolder the lead wire of 4326 as shown in Fig. 11. as arrow mark.
4. Remove the two 9611-1430-01, 4326 and 0434.
5. Loosen the two 9612-1750-01 and remove 0626 and 0627.
6. Loosen 9106 and 9612-1417-01, and remove 4324 and 0224.
7. Remove 9028 using the special tool (054-9024-77), provided and take off 4323, 4339 and the shutter base plate-A block.
   Caution: For the shutter base plate-A block, see remove as Page. 29, L 1～4.
8. Remove 9720-0120-00, then take off 0233 by lifting the spring and remove 9791-1838-40.
9. Remove 9119, 9612-1417-01 and 0409.
10. Loosen the two 9612-1720-02 and 0236.

E. カウンター・マグネット・シャッター台板分解要領

1. 9612-1730-01, 2本、9612-1780-01を外し、捲上台板ブロック、9410を取外す。
   注意：捲上台板ブロックの分解はP.29, L 7～8参照。
2. 9102を外し、3402, 0623, 9792-2645-40を取外す。
3. 4326 リード線半田付けを外す。Fig. 11矢印。
4. 9611-1430-01 2本を外し、4326, 0434を取外す。
5. 9612-1750-01 2本を外し、0626, 0627を取外す。
6. 9106, 9612-1417-01を外し、4324, 0224を取外す。
7. 専用治工具（054-9024-77）を使用し、9028を外し、4323, 4339, シャッター台板Aブロックを取外す。
   注意：シャッター台板Aブロックの分解はP.29, L 1～4参照。
8. 9720-0120-00を外し、0233のスプリングを外して引上げる。9791-1838-40が外れる。
9. 9119, 9612-1417-01を外し、0409を取外す。
10. 9612-1720-02 2本を外し、0236を取外す。

Fig. 10

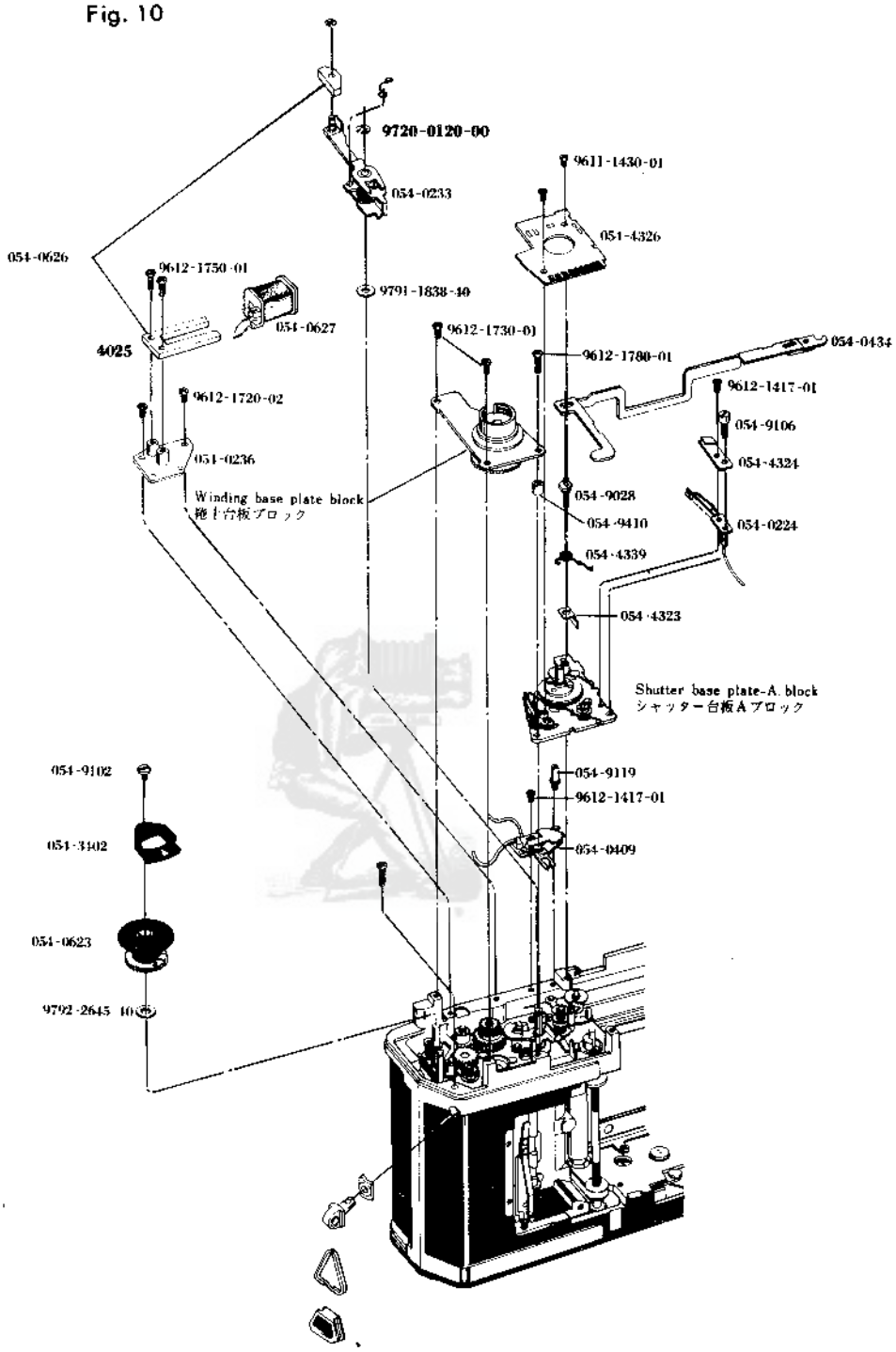
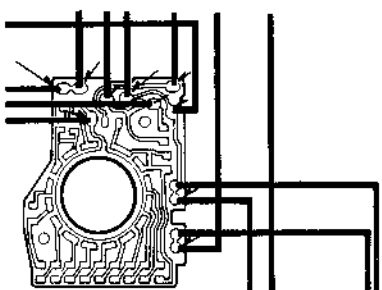

9720-0120-00
9611-1430-01
054-0233
054-4326
054-0626
9612-1750-01
9791-1838-40
4025
054-0627
9612-1730-01
9612-1780-01
054-0434
9612-1417-01
9612-1720-02
054-9106
054-0236
054-4324
Winding base plate block
巻上台板ブロック
054-9028
054-9410
054-0224
054-4339
054-4323
Shutter base plate-A block
シャッター台板Aブロック
054-9102
054-9119
9612-1417-01
054-3402
054-0409
054-0623
9792-2645 10

Fig. 11



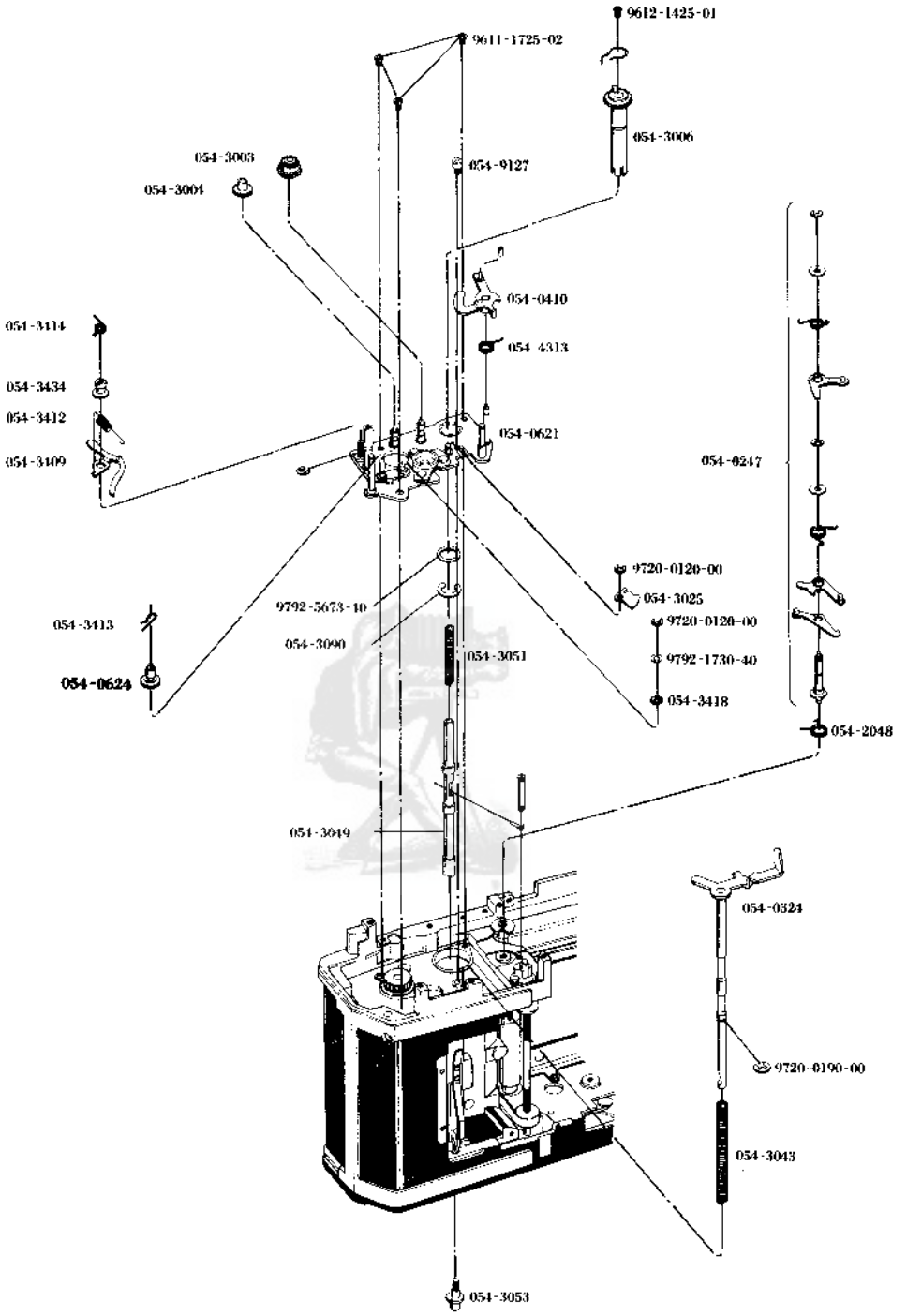
F. Disassemble the Winding gear base plate, Stop lever axis and Release axis

1. Remove 2048 by lifting 0247.
2. Remove 4313 by lifting 0410.
3. Remove 3412, 3414, 3434 and 3409 in that order.
4. Remove the reverse screw, 3053, by using the special tool (026-3053-77), provided.
5. Take off 3004 and 3003.
6. Remove the three 9611-1725-02, 9127 and 0621.
7. Remove 9612-1425-01, 3051 and 3049.
8. Remove 3090, 9792-5673-40 and 3006.
9. Remove 3413 and 0624.
10. Remove 9720-0120-00, 3418 and 9792-1730-40.
11. Remove 9720-0120-00 and 3025.
12. Remove 9720-0190-00, 0324 and 3043.

F. 巻上台板・係止レバー軸・レリーズ軸分解要領

1. 0247を引上げて取外す。2048が外れる。
2. 0410を引上げて取外す。4313が外れる。
3. 3412, 3414, 3434を外し, 3409を取外す。
4. 専用治工具（026-3053-77）を使用し, 3053逆ねじを取外す。
5. 3004, 3003を取外す。
6. 9611-1725-02　3本, 9127を外し0621を取外す。
7. 9612-1425-01を外し3051, 3049を取外す。
8. 3090を外し9792-5673-40, 3006を取外す。
9. 3413を外し, 0624を取外す。
10. 9720-0120-00を外し, 3418, 9792-1730-40を取外す。
11. 9720-0120-00を外し, 3025を取外す。
12. 9720-0190-00を外し, 0324, 3043を取外す。

Fig. 12


9612-1425-01
9611-1725-02
054-3006
054-3003
054-3004
054-9127
054-0410
054-3114
054 4313
054-3434
054-3412
054-0621
054-3109
054-0247
9720-0120-00
054-3025
9792-5673-10
054-3413
9720-0120-00
054-3090
054-3051
9792-1730-40
054-0624
054-3418
054-2048
054-3049
054-0324
9720-0190-00
054-3043
054-3053

G. Disassemble the Brake and Sprocket gear base plate

1. Unsolder the synchronous circuit. Fig.13. as arrow mark.
2. Remove 9613-2045-01 and the two 9613-1730-01, and take off the brake base plate block.
3. Remove the two 9611-2350-01 and 1013.
4. Remove 9030, 3056, 9417, 0375 and 0352 in that order.
5. Remove the three 9612-1735-01 and 0406.
6. Remove the two 9621-1420-01 and 2073 (reverse screw) and 2072. as show Fig. 15.
7. Remove 2073 (Reverse screw) by hold the shutter curtain spring tube axis in place with the tip of a screw-driver as show Fig. 16.
8. Remove the two 9611-1740-01, 2076, 9402 and 9405.
9. Loosen the three 9613-1730-01 and remove 0292, 0298, 9791-1735-40 and 0293.

G. ブレーキ・スプロケット台板分解要領

1. シンクロ回路半田付けを外す。Fig. 13矢印。
2. 9613-2045-01, 9613-1730-01　2本を外し，ブレーキ台板ブロックを取外す。
3. 9611-2350-01　2本を外し，1013を取外す。
4. 9030を外し，3056，9417，0375，0352を取外す。
5. 9612-1735-01　3本を外し，0406を取外す。
6. 9621-1420-01　2本をゆるめ，2073を左回転させて2072を取外す。Fig. 15参照。
7. 幕スプリング軸をドライバーで固定し2073（逆ねじ）を取外す。Fig. 16参照。
8. 9611-1740-01　2本を外し，2076，9402，9405を取外す。
9. 9613-1730-01　3本を外し，0292，0298，9791-1735-40，0293を取外す。

Fig. 13

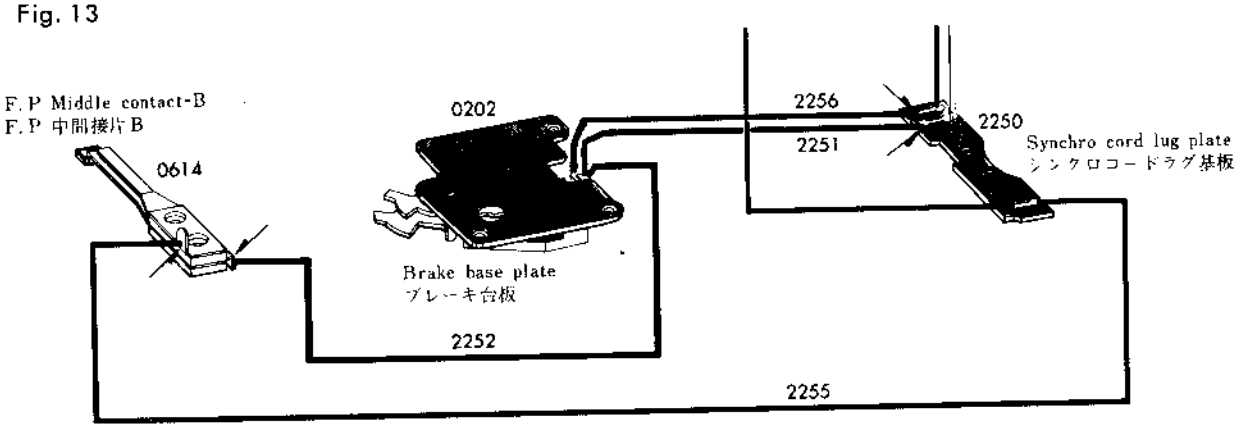


Fig. 14

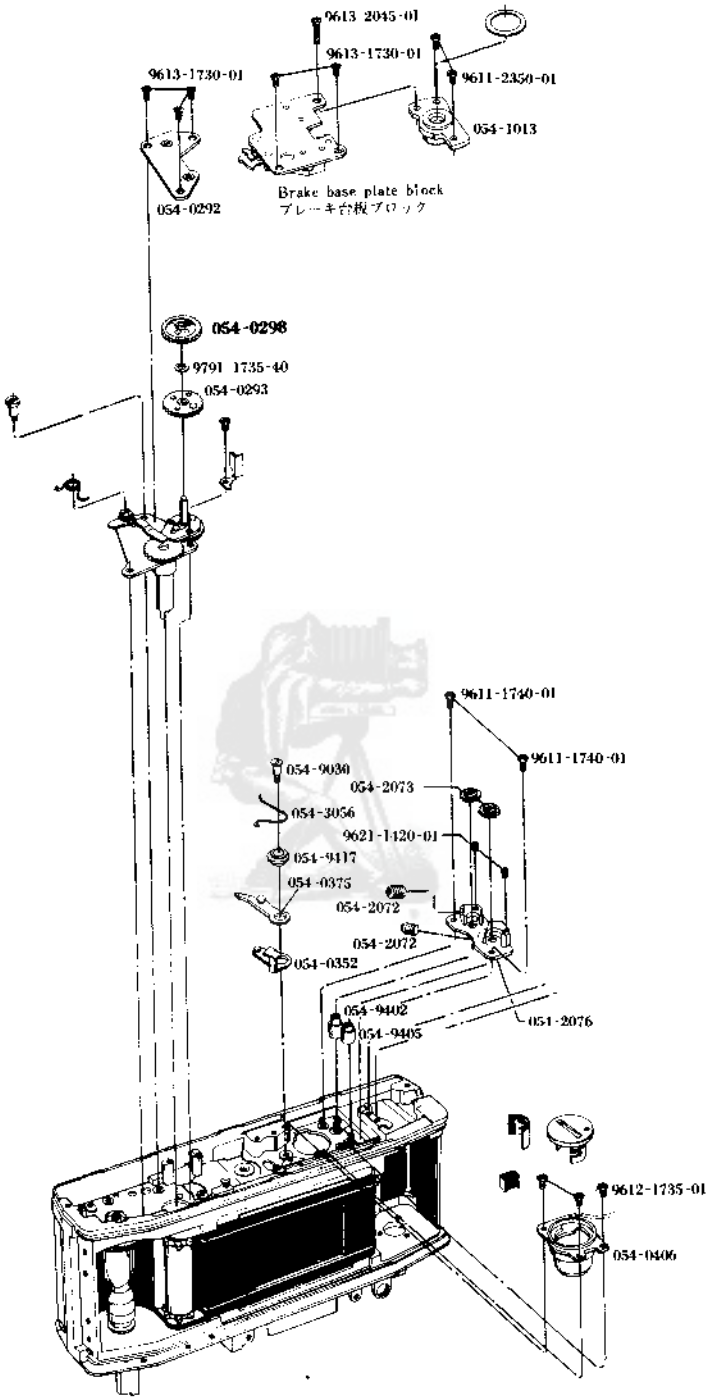


Fig. 15

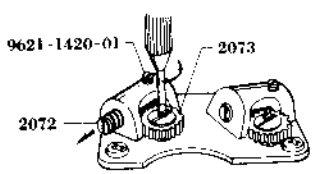
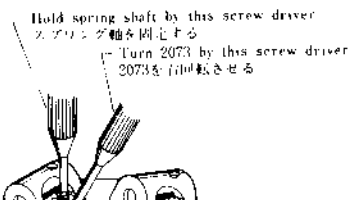


Fig. 16



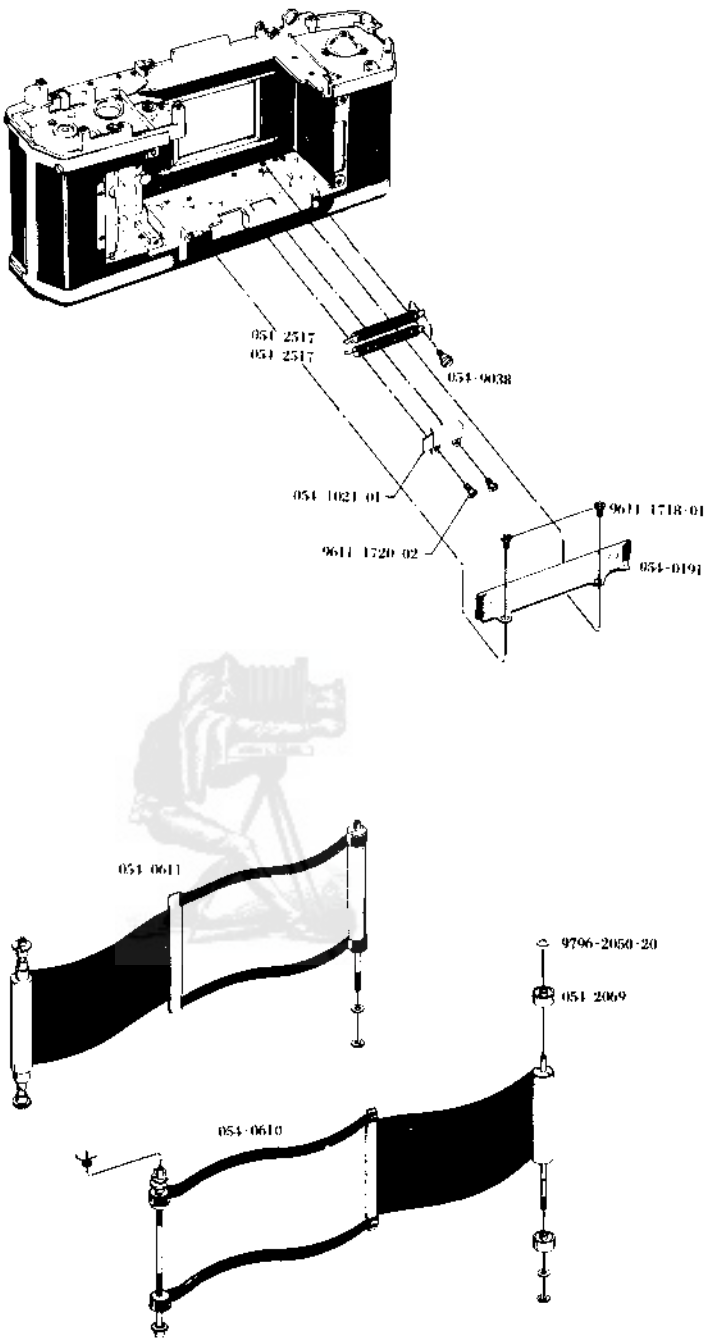
H. Disassemble the Shutter curtain

1. Loosen the two 9611-1718-01 and remove 0191, 0610, 0611, 2069 and 9796-2050-20.
2. Remove the two 9611-1720-02 and 1024.
3. Remove 9038 and the two 2517.

H. シャッター幕分解要領

1. 9611-1718-01　2本を外し，0191，0610，0611，2069，9796-2050-20を取外す。
2. 9611-1720-02　2本を外し，1024を取外す。
3. 9038を外し，2517　2本を外す。

Fig. 17


051 2517
051 2517
054-9038
054 1021 01
9611 1718 01
9611 1720 02
054-0191
054 0611
9796-2050-20
051 2069
054-0610

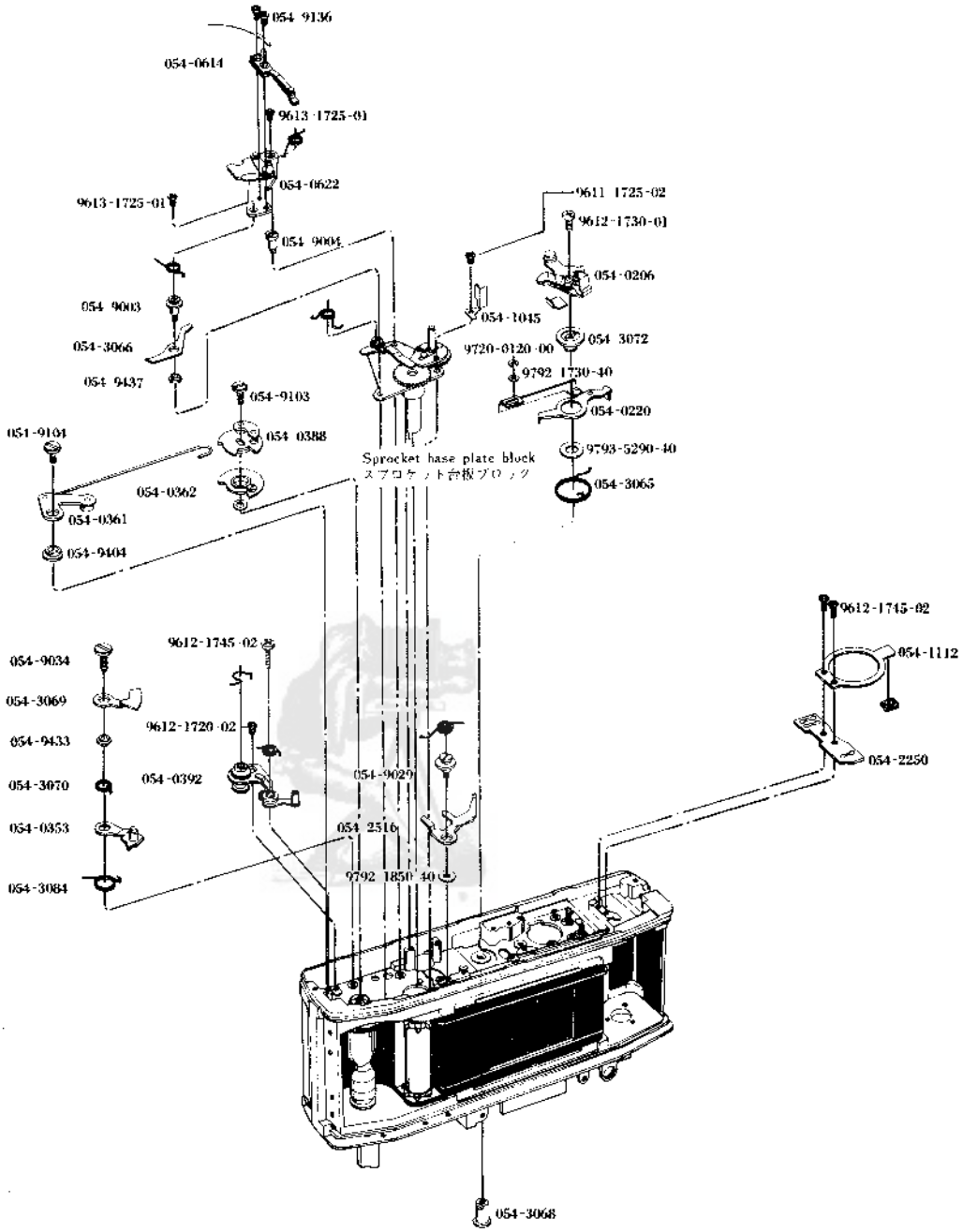
Ⅰ. Disassemble the Charge lever mechanism

1. Remove 9104, 0361 and 9404.
2. Remove 9612-1730-01, 0206 and 3068.
3. Remove 3072 (reverse screw) by using the special tool provided (054-3072-77).
4. Remove 9720-0120-00, 9792-1730-40, 0220, 9793-5290-40 and 3065 in that order.
5. Remove the two 9136 and 0614.
6. Remove the two 9613-1725-01 and 0622.
7. Loosen 9034 and remove 3069, 9433, 3070, 0353 and 3084.
8. Remove 9103, 0388 and 0362.
9. Loosen 9003, 9004 and 9611-1725-02 and remove 3066, 9437, 1045 and the sprocket base plate block.
10. Remove 3046. Page. 28 as show in Fig. 21.
11. Remove 9029, 2516 and 9792-1850-40.
12. Remove the two 9612-1745-02, 1112 and 2250.
13. Remove 9612-1745-02, 9612-1720-02 and 0392.

Ⅰ. チャージレバー機構分解要領

1. 9104を外し，0361，9404を取外す。
2. 9612-1730-01を外し，0206，3068を取外す。
3. 専用治工具（054-3072-77）を使用し，3072逆ねじを外す。
4. 9720-0120-00，9792-1730-40を外し，0220，9793-5290-40，3065を取外す。
5. 9136　2本を外し，0614を取外す。
6. 9613-1725-01　2本を外し，0622を取外す。
7. 9034を取外し，3069，9433，3070，0353，3084を取外す。
8. 9103を外し，0388，0362を取外す。
9. 9003，9004，9611-1725-02を外し，3066，9437，1045，スプロケット台板ブロックを取外す。
10. 3046が外れる。P. 28，Fig. 21参照。
11. 9029を外し，2516，9792-1850-40を取外す。
12. 9612-1745-02　2本を外し，1112，2250を取外す。
13. 9612-1745-02，9612-1720-02を外し，0392を取外す。

Fig. 18


054 9136
054-0614
9613-1725-01
054-0622
9613-1725-01
054 9004
9611 1725-02
9612-1730-01
054-0206
054 9003
054-1045
054-3066
9720-0120-00
054 3072
054 9437
9792 1730-40
054-9103
054-0220
054-9101
054 0388
9793-5290-40
Sprocket base plate block
スプロケット台板ブロック
054-0362
054-3065
054-0361
054-9404
9612-1745-02
054-1112
9612-1745-02
054-9034
054-3069
9612-1720-02
054-9433
054-0392
054-2250
054-9029
054-3070
054 2516
054-0353
9792 1850-40
054-3084
054-3068

J. Disassemble the Circuit base plate and Back cover lock

1. Unsolder the circuit base plate. Fig. 19.
2. Remove 0317.
3. Remove 9008, 5206, 9431 and 5208.
4. Loosen the two 9612-1725-02 and remove 4359 and 4329.
5. Remove 9024, by using the special tool (054-9024-77) provided.
6. Remove 9112, 9113 and 0437.
7. Remove the two 9613-1735-12, 1111, 1108 and the two 9413.
8. Remove the three 9612-2035-02 and 3310.
9. Remove 3308, the two 3307 and 3304.

J. 回路基板・裏蓋ロック分解要領

1. 回路基板半田付を取外す。Fig. 19
2. 0317を取外す。
3. 9008を外し，5206，9431，5208を取外す。
4. 9612-1725-02　2本を外し，4359，4329を取外す。
5. 専用治工具（054-9024-77）を使用し，9024を外す。
6. 9112，9113を外し，0437を取外す。
7. 9613-1735-12　2本を外し，1111，1108，9413　2本を取外す。
8. 9612-2035-02　3本を外し，3310を取外す。
9. 3308を外し，3307　2本，3304を取外す。

Fig. 19

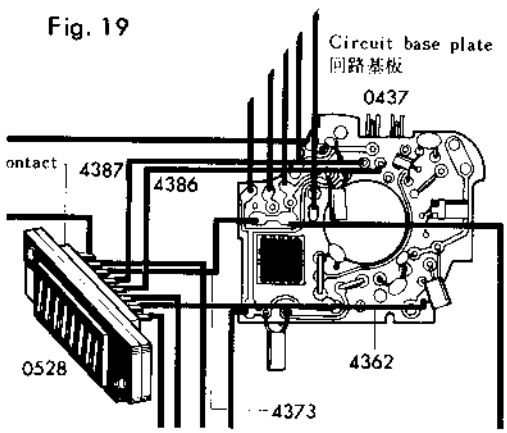
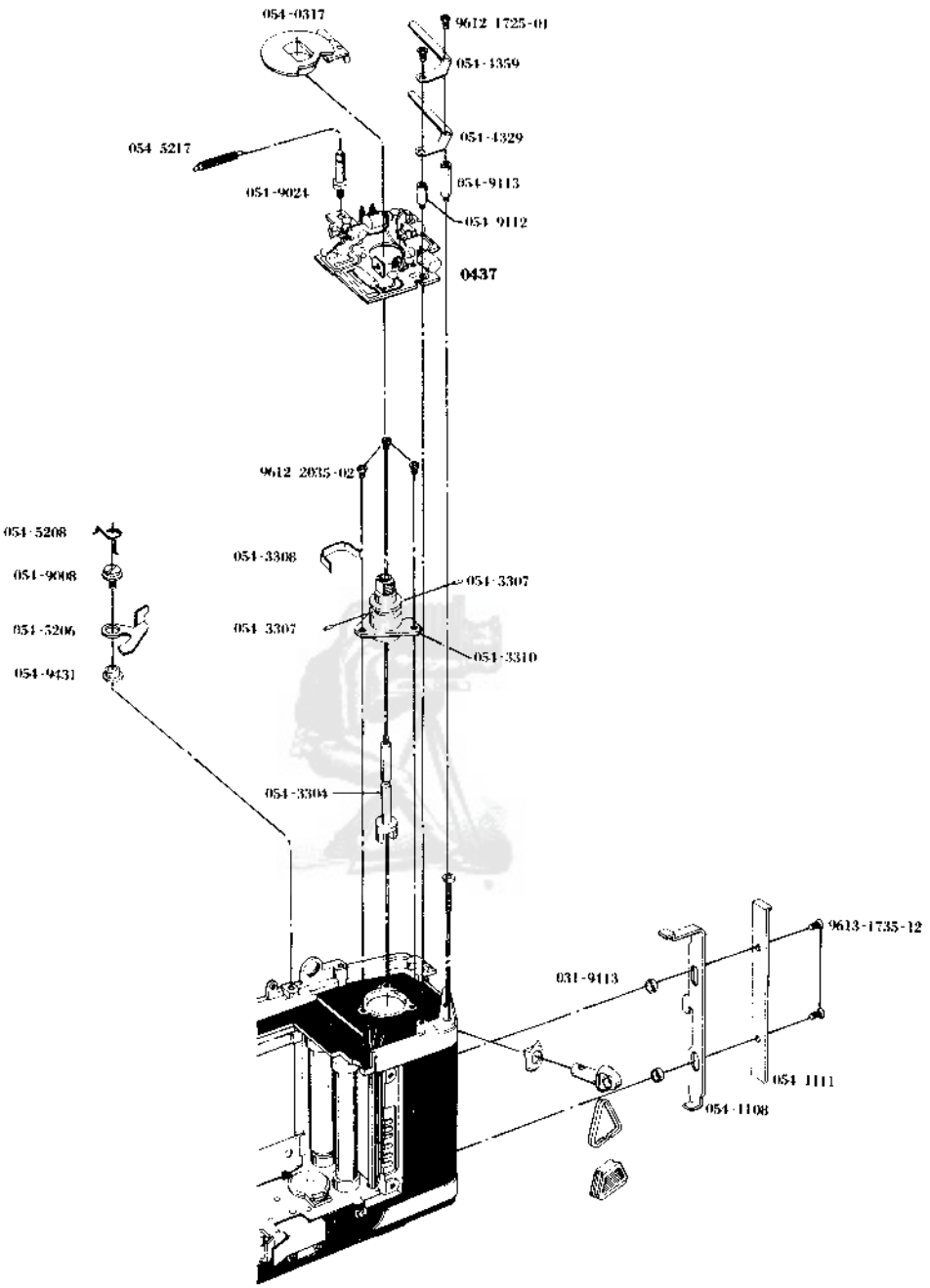


Fig. 20


054-0317
9612 1725-01
054-1359
054 5217
054-4329
054-9024
054-9113
054-9112
0437
9612 2035-02
054-5208
054-3308
054-9008
054-3307
054-5206
054 3307
054-3310
054-9431
054-3304
9613-1735-12
031-9113
054 1111
054-1108

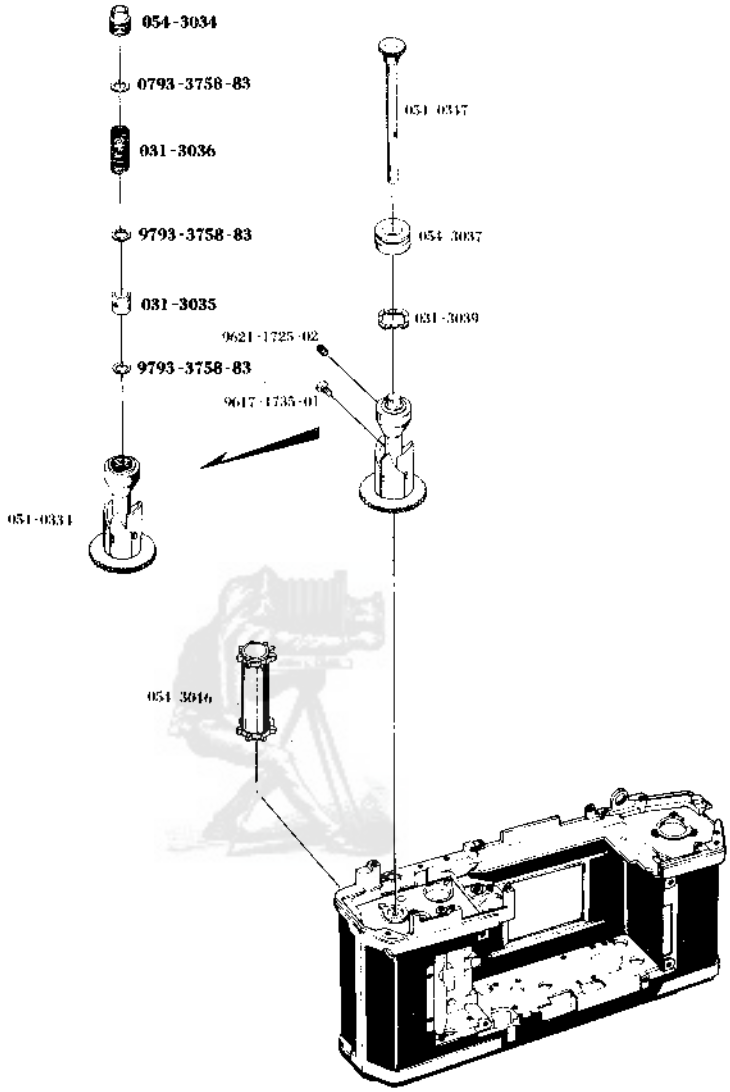
K. Disassemble the Spool gear

1. While pressing 0334 with a finger so that it does not turn, rotate 0347 until the screw of 9617-1735-01 fits into the hole of 0334.
2. Loosen 9617-1735-01 and remove 0347 by lifting it. Also, remove 0334, 3037 and 3039.
3. Loosen 9621-1725-02 and remove 3034, the three 9793-3758-83, 3036 and 3035.

K. スプール分解要領

1. 0334が回転しない様に指で押え、0347を回して0334の穴に9617-1735-01のビスが来る様にする。
2. 9617-1735-01を外し、0347を引き上げて外し0334を取外す。3037, 3039が外れる。
3. 9621-1725-02を外し、3034, 9793-3758-83　3ケ、3036, 3035を取外す。

Fig. 21


054-3034
0793-3758-83
031-3036
9793-3758-83
031-3035
9793-3758-83
051-0331
051-0317
054-3037
031-3039
9621-1725-02
9617-1735-01
054-3046

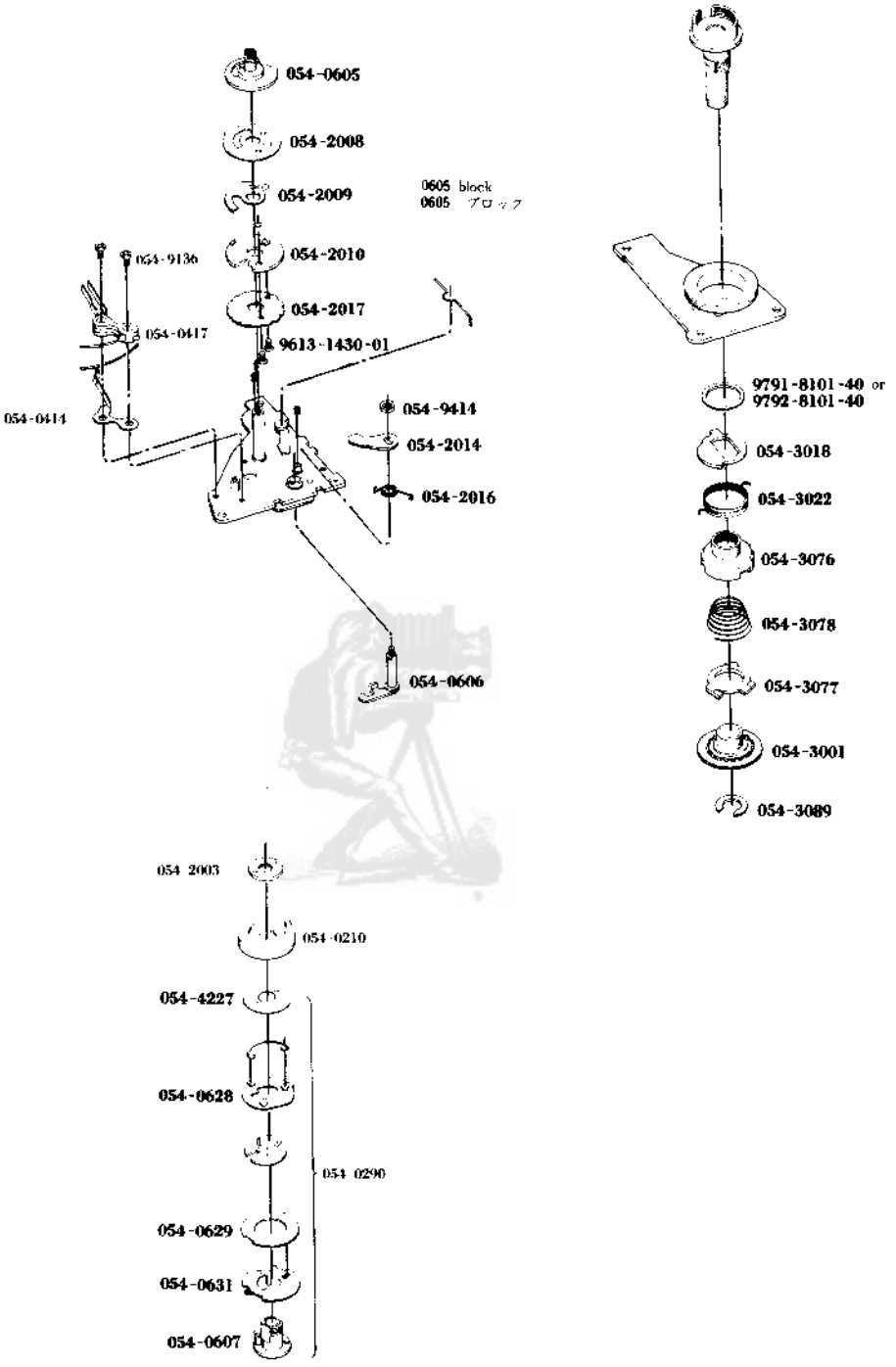
L. Disassemble the Shutter, Winding gear base plate and Shutter Speed dial

1. Remove 9414 by using the special tool (054-9024-77) provided. Then remove 2014, 2016 and 0606.
2. Remove the two 9136, 0417 and 0414.
3. Remove the 0605 block.
4. Loosen the two 9613-1430-01 and remove 2017, 2010, 2009, 2008 and 0605.
5. Remove 2003 by using the universal compass provided. Then remove 0210 and 0290.
6. Loosen 4227 with the universal compass provided, and remove 0628, 0629, 0631 and 0607.
7. Remove 3089, 3001, 3077 and 3078.
8. Loosen 3076 by using the special tool (054-3076-77) provided, and remove 3022, 3018, 9792-8101-40, 9791-8101-40 and 3017.

L. シャッター・巻上台板シャッターダイヤル分解要領

1. 専用治工具（054-9024-77）を使用し，9414を外し2014，2016，0606を取外す。
2. 9136　2本を外し，0417，0414を取外す。
3. 0605ブロックを取外す。
4. 9613-1430-01　2本を外し，2017，2010，2009，2008，0605を取外す。
5. 万能回螺器を使用し，2003を外し0210，0290を取外す。
6. 万能回螺器を使用し，4227を外し，0628，0629，0631，0607を取外す。
7. 3089を外し，3001，3077，3078を取外す。
8. 専用治工具（054-3076-77）を使用し，3076を外し，3022，3018，9792-8101-40，or 9791-8101-40，3017を取外す。

Fig. 22


054-0605
054-2008
054-2009
0605 block
0605 ブロック
054-2010
054-9136
054-2017
054-0417
9613-1430-01
054-0414
054-9414
054-2014
054-2016
054-0606
9791-8101-40 or
9792-8101-40
054-3018
054-3022
054-3076
054-3078
054-3077
054-3001
054-3089
054 2003
054-0210
054-4227
054-0628
054 0290
054-0629
054-0631
054-0607

M. Disassemble the Brake and Sprocket gear base plate

1. Loosen 9720-0190-00 and remove 9792-2645-40, 0612, 9794-2645-20, 0613 and 2130.
2. Loosen 3090 and remove 9792-5673-40 and 3007.

Caution: When removing 3007 from 0305, be sure to make a mark on the gear engagement piece so that the gear can be reassembled in the proper position. Fig. 25.

M. ブレーキ・スプロケット台板分解要領

1. 9720-0190-00を外し，9792-2645-40，0612，9794-2645-20，0613，2130を取外す。
2. 3090を外し，9792-5673-40，3007を取外す。

注意：3007を0305より取外す場合は取付け後のギヤー位置が狂わないようにギヤー噛合部にマジックインキ等で（マーク）を入れておく。Fig. 25参照。

Fig. 23

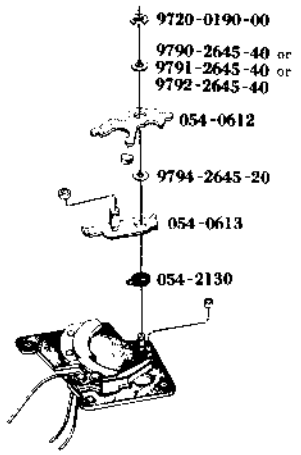


Fig. 24

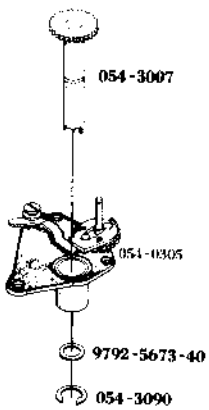
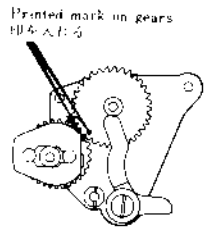


Fig. 25



Service Manual

MINOLTA XM
MINOLTA X-1
MINOLTA XK

Minolt

REASSEMBLY

組　立　編

How to Reassemble

A.　Mirror box ····· 1
B.　Front frame ····· 7
C.　Mirror box, Front frame coupling ····· 9
D.　Body ····· 1

Note: 1. The attention ★ mark of the front parts number in contents a illustrated in the Figure, put into not assemble it page.

2. How to see the arrow mark contents a illustrated in the Figure.
   1) G No. 335——→Apply grease No. 335 to the arrow mark position.
   2) G No. 006——→Apply grease No. 006 to the arrow mark position.
   3) O No. 012——→Apply oil No. 012 to the arrow mark position.
   4) O No. 003——→Apply oil No. 003 to the arrow mark position.
   5) M——→Apply Molykote to the arrow mark position.
   6) M. G——→Apply Molykote grease to the arrow mark position.
   7) S. L——→Attention screw of the arrow mark is fixed screw by bond
      Caution: The arrow mark is indicated only one screw, how
      together with fixed by bond.

組　立　編

A.　ミラーボックス ····· 1
B.　前　枠 ····· 7
C.　ミラーボックス・前枠結合 ····· 9
D.　ボ デ ー ····· 1

注：1. 部品展開図の中で部品番号の前に★印があるものはそのページの組立行程では組込みをいたしませんので御注意下さい。

2. 部品展開図中の矢印記号の見方。
   1) G No. 335——→矢印先端の箇所にグリースNo. 335を塗布する。
   2) G No. 006——→矢印先端の箇所にグリースNo. 006を塗布する。
   3) O No. 012——→矢印先端の箇所にオイルNo. 012を塗布する。
   4) O No. 003——→矢印先端の箇所にオイルNo. 003を塗布する。
   5) M——→矢印先端の箇所にモリコートを塗布する。
   6) M. G——→矢印先端の箇所にモリコートグリースを塗布する。
   7) S. L——→矢印のねじをねじロックする（矢印は1本しか表示してありませんがその部品を止めているねじ全部をねじロックしますので御注意下さい）。

A. Mirror Box Reassembly

1. Position 5006 and 5007, and mount them with 9613-1720-11.
2. Fasten 0659 with 9009.
3. Pass 9791-3142-40 through 0657, and insert 0637.
4. Fasten 9108 and 9120, set 0656 so that 9120 is positioned in the square hole of 0656, and fasten it with 9611-1718-02. See Fig. 2.
5. Fasten 0658 with 9009.
6. Insert 5214 into 0657 and hook it as shown in Fig. 3.
7. Fasten 0657 with 9101 so as to fit into the oval hole in 5210. Check that 0657 operates correctly.
8. Fasten 9109 and 9114.
9. Set 0640 and 0639. Check that both ends of 0639 are about 0.1mm and that 0639 operates smoothly.
10. Insert the mirror holder mounted as above into 0637, set it so that the pins of 0651 and 5126 come in the hole of 0640, and fasten them with 9117, 9010 and 9613-1720-01.
11. Fasten 0641 with 9011 and 9116, and hook 7175 as shown in Fig. 4.
12. Fasten 0643 and 0642 with 9111 and 9611-1718-02.
13. Mount 9434, fasten 0633 with 9039 and hook 4357 as indicated in Fig. 4.

A. ミラーボックス組立要領

1. 5006, 5007を置き, 9613-1720-11で取付ける。
2. 0659を9009で止める。
3. 0657に9791-3142-40を通し0637に入れる。
4. 9108, 9120を止め, 0656の角穴部に9120が入るように0656をセットし, 9611-1718-02で止める。Fig. 2 参照。
5. 0658を9009で止める。
6. 5214を0657に入れ, Fig. 3 のように掛ける。
7. 5210の小判穴に0657が正しく入るようにして9101で止める。作動チェック。
8. 9109, 9114を止める。
9. 0640, 0639をセットする。この時, 0639の左右ガタが0.1mm程度であり, 軽く作動することを確認する。
10. 上記でセットしたミラーホルダーを0637にはめ込み, 0651, 5126のピンが0640の穴に入るようにセットし, それぞれ9117, 9010, 及び9613-1720-01で止める。
11. 0641を9011, 9116で止め, 5175をFig. 4 のように掛ける。
12. 0643, 0642を9111, 9611-1718-02で止める。
13. 9434を置き, 0633を9039で止め, 4357をFig. 4 のように掛ける。

Fig. 1

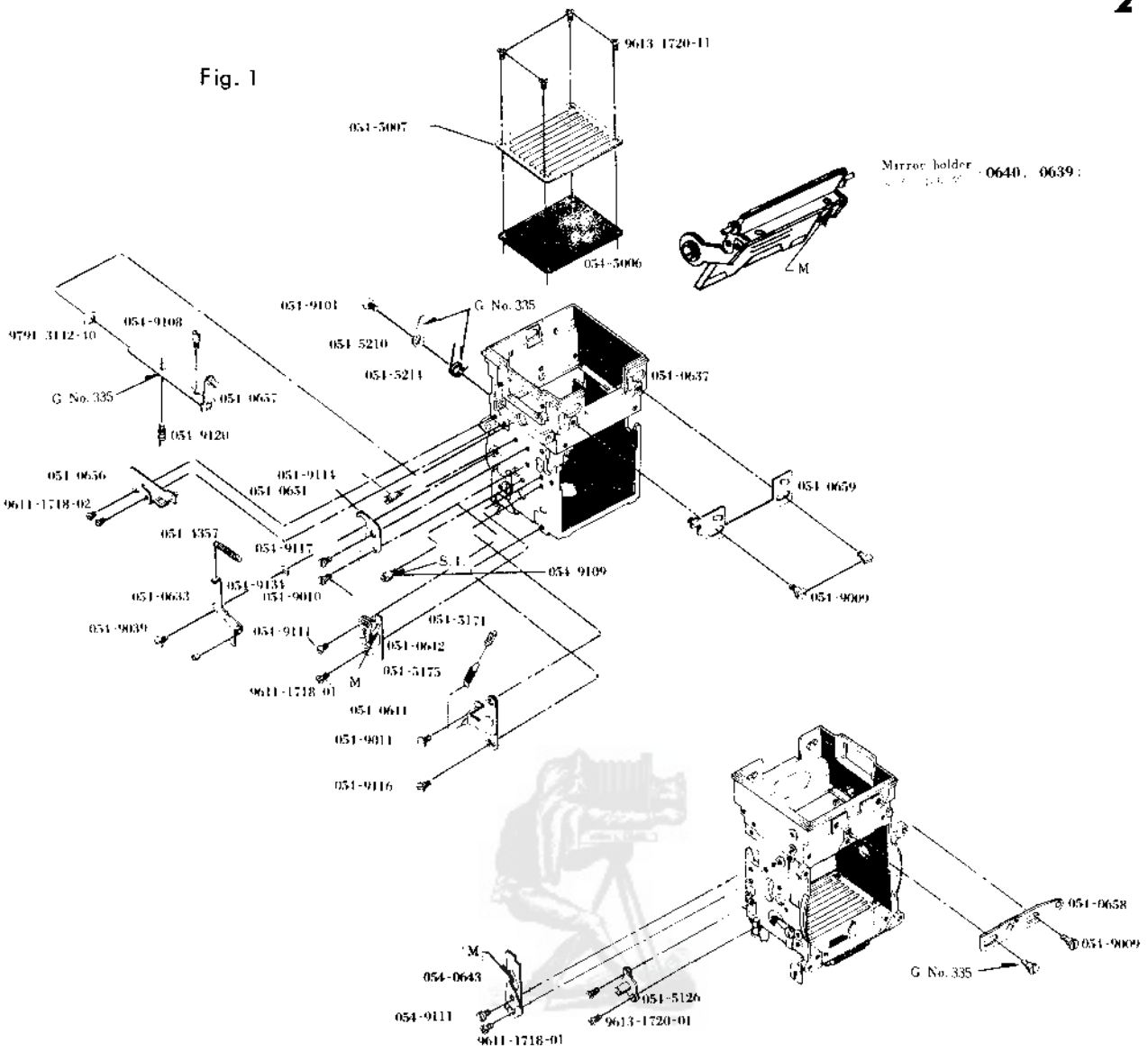


Fig. 2

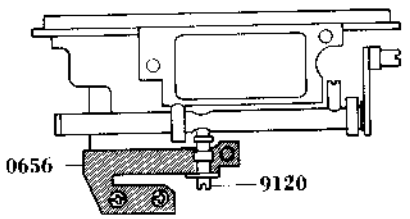


Fig. 3

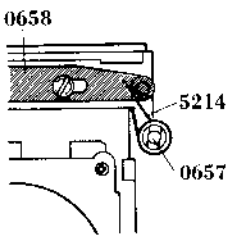
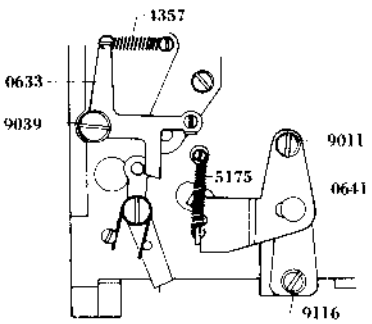


Fig. 4



14. Mount 5160 and 0655 and fasten them with 9611-1415-02. See Fig. 6.
15. Mount 0654 and 0660 as shown in Fig. 7, place 5157 on them and fasten it with 9613-1420-02 and 9611-1718-02. Pay attention to the sides of 5157.
16. Hook 5160 as indicated in Fig. 7, and check that 0654 operates properly.
17. Fasten 9128.
18. Fasten 0634 with 9013 and 9023, and hook 4322 as shown in Fig. 8. Also, check the operation of 0634.
19. Position the pin of 0649 in the hole of 0640, and hook the end of 5172 as shown in Fig. 9.
20. Fasten 0647 with 9115, insert 0653 into the piston of 0647, and secure it with 9036. Check that the preassembled piston and cylinder are free from dust or oil. If they are stained, clean them with ether or alcohol. Don't apply oil and grease to them.
21. Hook the end of 5172 as shown in Fig. 9.
22. Fasten 5114 with 9613-1720-01.
23. Fasten 0648 with 9032 and 9135.
24. Fasten 0636 with 9613-1423-02.
25. Insert the longer shaft of 0646 in 0645, position the pin on 0646 in the groove of 0647, and fasten it with 9611-1725-01 and 9613-1720-01. See Fig. 9.
26. Mount 9792-1845-40 and 0644 (set them so that 0634, 0645 and 9115 are connected as illustrated in Fig. 10), fasten them with 9037 and hook 5153 and 5151 as shown in Fig. 10.
27. After reassembling 5128, 9427, 5122, 9434, 0652 and 9007 as shown in Fig. 11, attach them with 9007.
28. Hook 5152 as indicated in Fig. 12.

14. 5160, 0655を置き，9611-1415-02で止める。Fig. 6 参照。
15. 0654，0660をFig. 7 のように置き，5157を乗せ，9613-1420-02，9611-1718-02で止める。5157の裏表に注意のこと。
16. 5160をFig. 7 のように掛け，0654の作動をチェックする。
17. 9128を止める。
18. 0634を9013，9023で止め，4322をFig. 8 のように掛ける。作動チェック。
19. 0649のピンが0640の穴に入るようにセットし，5172の一端をFig. 9 のように掛ける。
この時，5172の折り曲げ部が長い方を0649に掛ける。
20. 0647を9115で止め，0653を0647のピストン部に入れ，9036で止める。
組込前にピストン，シリンダーにゴミや油が附着していないかをチェックし，汚れていればエーテル，アルコール等で清掃する。油，グリース類は絶対に塗らぬこと。
21. 5172の一端をFig. 9 のように掛ける。
22. 5114を9613-1720-01で止める。
23. 0648を9032，9135で止める。
24. 0636を9613-1423-02で止める。
25. 0646の軸の長い方から0645に入れ，0647の溝に0646のピンが入るようにセットし，9611-1725-01，9613-1720-01で止める。Fig. 9 参照。
26. 9792-1845-40，0644（0634，0645，9115との関係がFig. 10のようになるようにセットする）を置き，9037で止め，5153，5151を掛ける。Fig. 10参照。
27. 5128，9427，5122，9434，0652，9007をFig. 11のように前もって組立ててから9007でセットする。
28. 5152を掛ける。Fig. 12参照。

Fig. 5

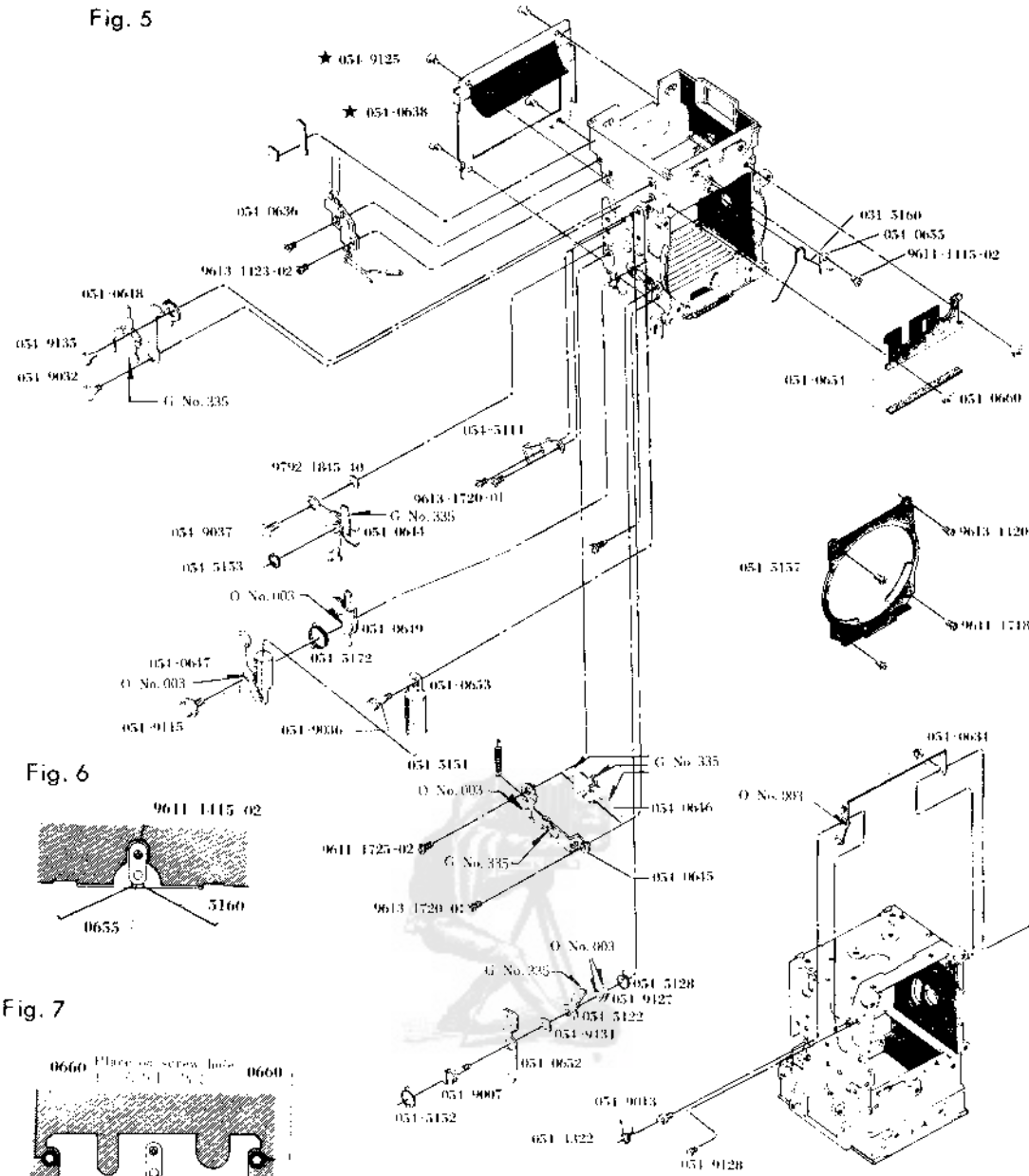
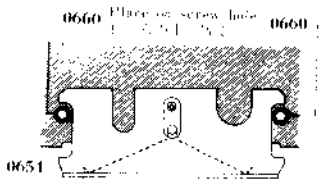


Fig. 6

Fig. 7



Hook at rear for projection at the rear of 0651

Fig. 8

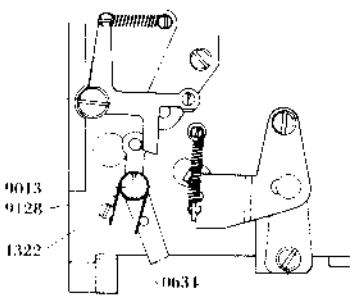


Fig. 9

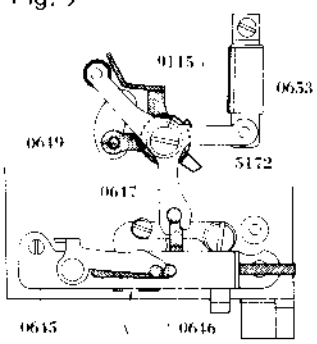


Fig. 10

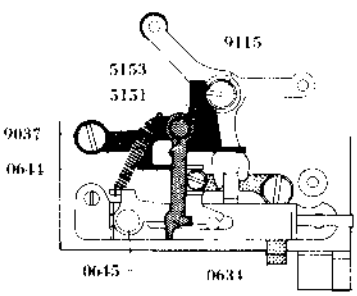


Fig. 11

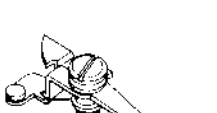
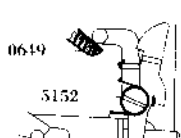


Fig. 12



29. Mount 9792-2260-40 and 0616, and fasten them with 2511 and 9613-2040-01.
30. Mount 9792-2260-40, position 0618 so that its groove engages the pin on 0616, set 0617 on 0618 so that the pin of 0617 fits into the groove of 0646, part A of Fig. 14, and fasten them with 9005. See Fig. 15.
31. Hook 2524 as shown in Fig. 15.
32. Mount 9792-1845-40 and 2507, fasten them with 2508 and 9613-1750-01, and hook 2509 onto the above assembly as indicated in Fig. 15.
33. Fasten 9040, and hook 5168 and 5169.
34. Mount 9792-1850-40 and fasten 0619 with 9031 and 9021. Hook 2578 as indicated in Fig. 15.
35. Fasten 2575 with 9611-1420-01 and hook 2577 onto it.
36. Fasten 5147 with 9035 and hook 5148 as shown in Fig. 15.
37. Attach 0630 with 9611-1720-01.
38. Set 0638 so that its curtain engages the claw at the rear of 0639, and fasten it with 9125. See Page. 4.

29. 9792-2260-40, 0616を置き，2511，9613-2040-01で止める。
30. 9792-2260-40を置き，0618の溝に0616のピンが入るように0618をセットし，その上に0617のピンが0646の溝（Fig.14-A部）に入るように置き，9005で止める。Fig.15参照。
31. 2524を掛ける。Fig.15参照。
32. 9792-1845-40，2507を置き，2508，9613-1750-01で止め，2509をFig.15のように掛ける。
33. 9040を止め，5168，5169を掛ける。
34. 9792-1850-40を置き，0619を9031，9021で止める。2578はFig.15のように掛ける。
35. 2575を9611-1420-01で止め5148を掛ける。
36. 5147を9035で止め，2577を掛ける。Fig.15参照。
37. 0630を9611-1720-01で止める。
38. 0638のカーテンが0639の裏側爪部に入るようにセットし，9125で止める。(See page. 4)。

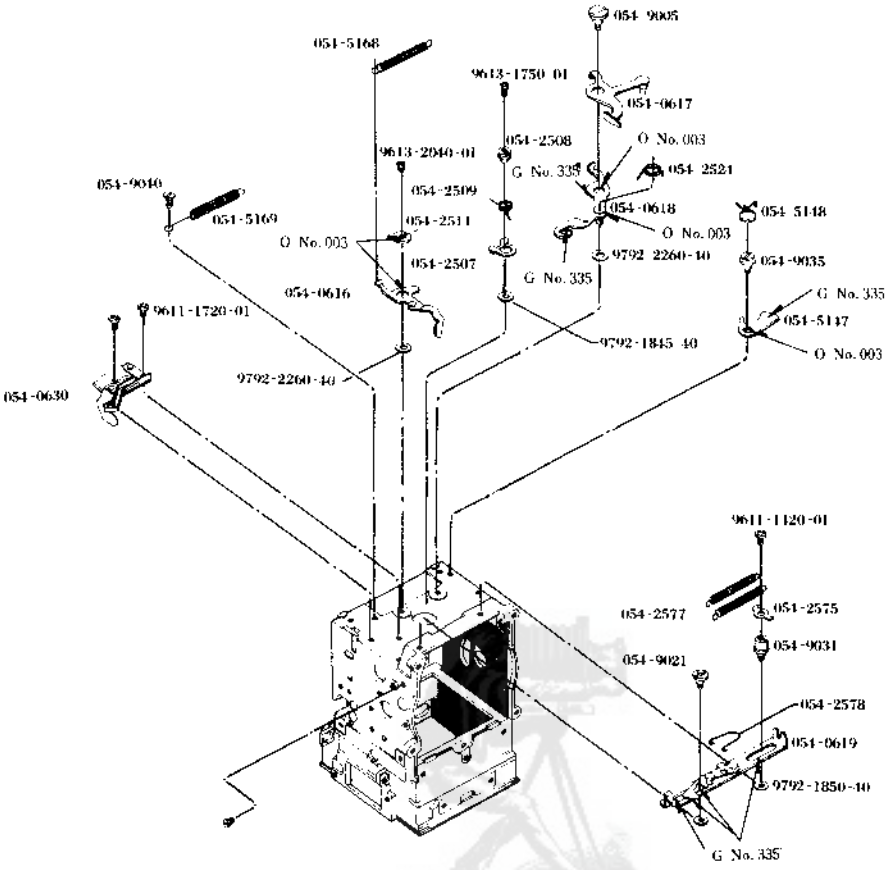


Fig. 14

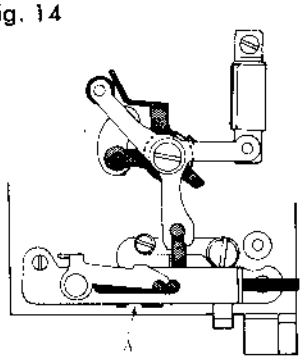
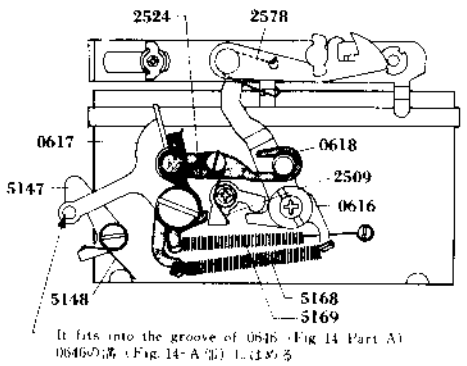


Fig. 15



It fits into the groove of 0646 (Fig. 14 Part A)

B. Front Frame Reassembly

1. Screw 2291 into the front frame and fasten it with 2207.
2. Fasten 0603 with 9612-1720-02.
3. Fasten 2587 with 9613-1730-01.
4. Fit 1075 in 1009, and fasten it with 9720-0190-00 at the inside of the front frame.
5. Place 9792-1850-40 and fasten 0602 with 9026.
6. Fasten 1014 with 9025 and hook it onto 0602.
7. Adjust the lock lever.(See the "HOW TO ADJUST")
8. Fix 2211 to 9792-3167-87, pass it through 0601, and fasten the part with 9110 after fixing 9416, 2212 and 2213 from the inside. When 2211 is directed to "X" (Fig. 17), set 2212 and 2213 in the position shown in Fig. 18.
9. Fasten 0615 with 9612-1730-01. Then, be sure that the terminal and change-over contacts have sufficient contact pressure.
10. Check the terminal continuity and insulation.
11. Fit 2585 (the red mark should point to the red indicator of 2587) and 2584 in the front frame, and fasten them with 0650 from the inside.
12. Place 5124 on 5131 and fasten them with 9611-1720-01.

B. 前枠組立要領

1. 2291をねじ込み，2207で止める。
2. 0603を9612-1720-02で止める。
3. 2587を9613-1730-01で止める。
4. 1075に1009を通し，内側より9720-0190-00で止める。
5. 9792-1850-40を置き，0602を9026で止める。
6. 1014を9025で止め0602に掛ける。
7. ロックレバー調整(調整編参照)
8. 2211に9792-3167-87をはめ0601に通し，内側より9416，2212，2213をはめ9110で止める。2211が"X"側の時（Fig.17）2212，2213がFig.18の状態になるようにセットする。
9. 0615を9612-1730-01で止める。この時ターミナル接片，切換接片の接触圧が充分あることを確認する。
10. ターミナル導通，絶縁チェック。
11. 2585（赤点が2587の赤指標に向く方向で入れる），2584を入れ内側より0650をはめる。
12. 5131に5124を重ね，9611-1720-01で止める。

Fig. 16

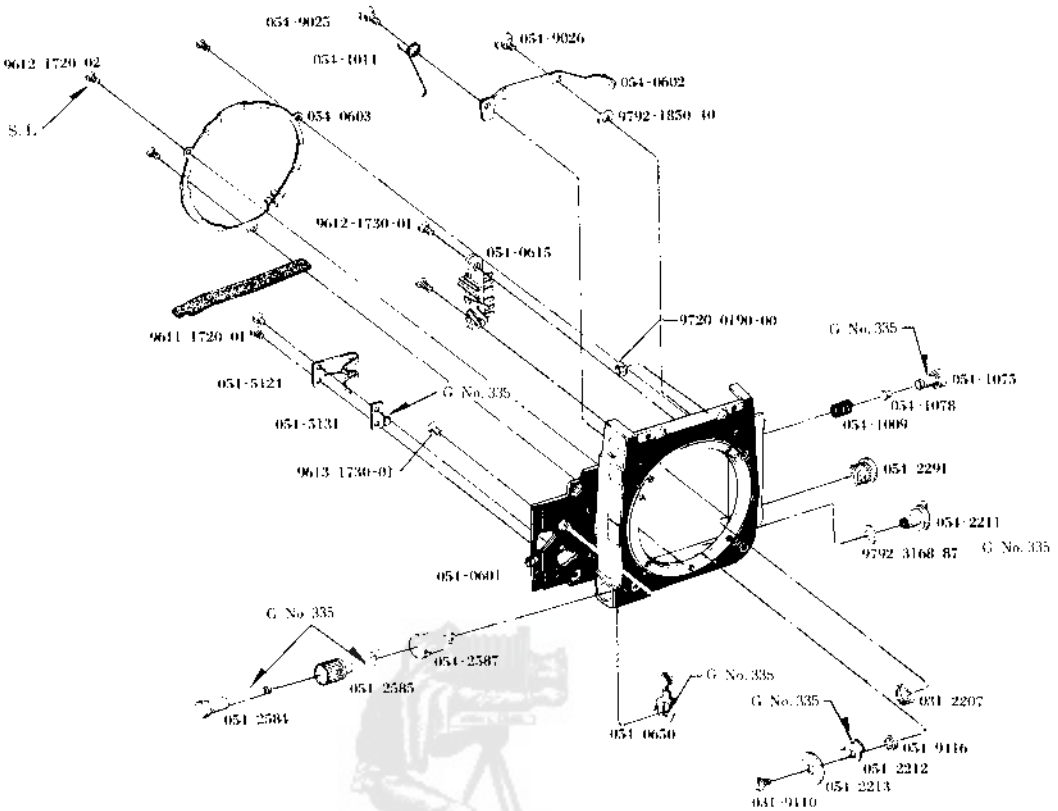


Fig. 17

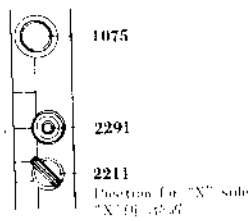
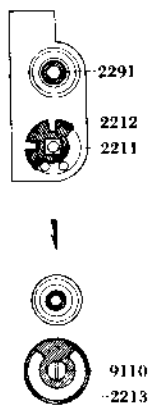


Fig. 18



C. Mirror Box and Front Frame Mounting

1. Check the following before mounting.
   1) Check that SW 2 and SW 5 are at the position shown in Fig. 20.
   2) Be sure that 0650 is kept without the mirror lock. See Fig. 21.
   3) Make sure to keep the mirror box at the position where the mirror is raised.
2. Mount the parts in the position where the following are satisfied, and fasten them with 9611-2050-02.
   1) Set the Release lever under 0644. See Fig. 22.
   2) Place 0650 on this side (film side) of 0652. See Fig. 23.
   3) Fit 0633 between SW 2 and SW 5. See Fig. 24.
   4) Place the terminal of 0615 outside that of 0630. See Fig. 25.
      (If 0630 is removed when mounting and reset after mounting, the work is easy).
   5) Fit 0619 into the groove of 2584 as shown in Fig. 26.
3. Fasten 1010 with 9611-2040-01.
4. Adjustment (See the "HOW TO ADJUST")
   1) Penta lock slide plate B
   2) MP stopper
   3) Mirror with 45° angle
   4) Gap of the Mirror operation lever
   5) Pre-set operation
   6) MP lock lever
   7) Mirror lock
   8) PV terminal contact
   9) SW 3
   10) Release position and SW 2 and SW 5 timing
5. Fasten 2491 with 9613-1740-01 and check that it operates properly.

C. ミラーボックス・前枠結合要領

1. 結合前の注意
   1) SW 2, SW 5がFig. 20のような位置になっているか。
   2) 0650はミラー係止がかかっていない状態にしておく。Fig. 21参照。
   3) ミラーボックスはミラーが上っている状態にする。
2. 次の各項を満足させるような状態に結合し，9611-2050-02で止める。
   1) レリーズレバーが0644の下にくること。Fig. 22参照。
   2) 0650が0652の手前側（フィルム側）にあること。Fig. 23参照。
   3) 0633がSW 2, SW 5の間に入ること。Fig. 24参照。
   4) 0615の接片が0630の接片の外側にあること。Fig. 25参照。
      （結合時に0630を一旦取外し，結合後に再びセットすると作業しやすい）
   5) 2584の溝に0619が入ること。Fig. 26参照。
3. 1010を9611-2040-01で止める。
4. 調　整（調整編参照）
   1) ペンタロックスライド板B調整
   2) M. Pストッパー調整
   3) ミラー45°角度調整
   4) ミラー操作レバー隙間調整
   5) プリセット作動調整
   6) M. Pロックレバー調整
   7) ミラーロック調整
   8) P. V接片調整
   9) SW 3調整
   10) レリーズ位置，SW 2，SW 5タイミング調整
5. 2491を9613-1740-01で止める。作動確認。

Fig. 19

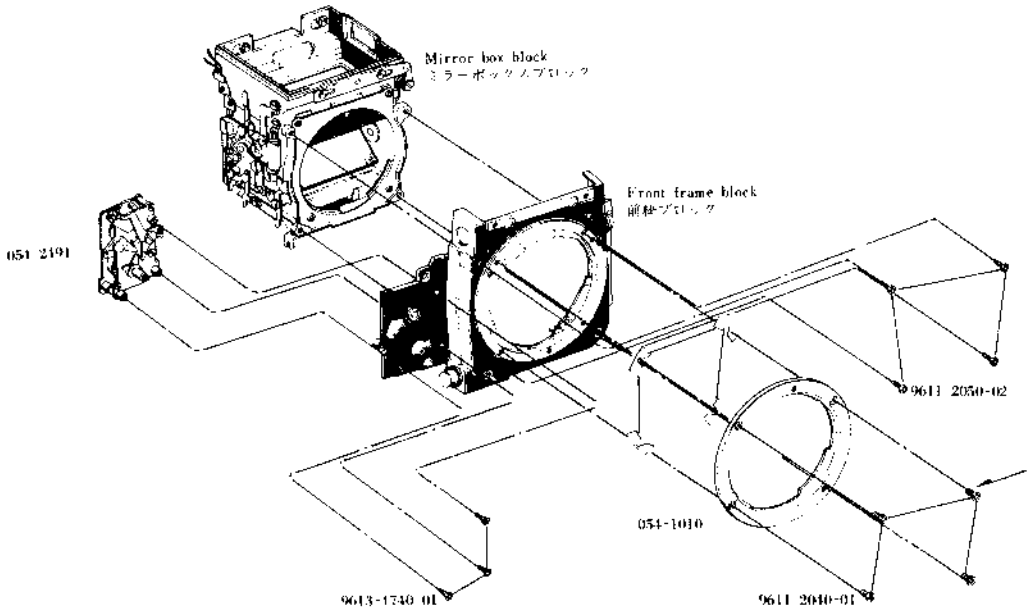


Fig. 20

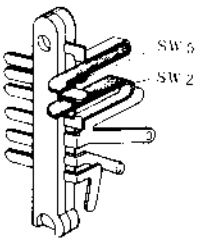


Fig. 21

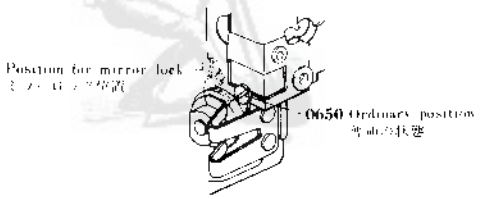


Fig. 22

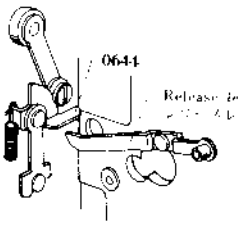


Fig. 23

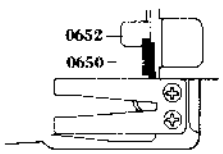


Fig. 24

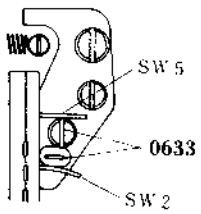


Fig. 25

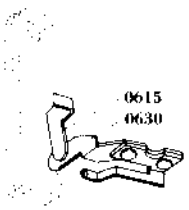
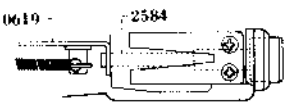


Fig. 26



D. Body Reassembly

1. Place 2250 and 1112 and fasten them with 9611-1745-02. Be careful about the direction of 1112. See Fig. 28.
2. Mount 3084 as shown in Fig. 29, put 0353, 3070 (in the direction as indicated in Fig. 30), 9433 (pay attention to the sides shown in Fig. 31) and 3069 on it in that order, and fasten them with 9034.
3. Hook one end of 3084 onto 0353 and attach the other end to the body by turning it as shown in Fig. 32.
4. Hook 3070 onto 0353 moving it with the finger in the direction of the arrow shown in Fig. 32.
5. Fix 3046 to the body in the direction illustrated in Fig. 35 (See Page. 14), mount the Sprocket base plate block on the body by moving 0353 and 3069 in the direction of the arrow shown in Fig. 32, and fasten the Sprocket base plate block with 9004 and 9611-1725-02 after placing 1045 on it.
6. Hook 3086 as shown in Fig. 33.

D. ボデー組立要領

1. 2250, 1112を置き, 9611-1745-02で止める。1112の向きに注意 (Fig. 28)。
2. 3084をFig. 29のように置き, 0353, 3070 (Fig. 30の向き), 9433 (上下注意Fig. 31), 3069を重ねて9034で止める。
3. 3084の引掛部を0353に掛け一端をFig. 32のように回してボデーに当てる。
4. 0353をFig. 32, 矢印方向に指で寄せておき3070を掛ける。Fig. 32参照。
5. 3046をFig. 35の方向にはめ (See page. 14) 0353, 3069をFig. 32, 矢印方向に寄せながらスプロケット台板ブロックを入れ, 1045を重ねて9004, 9611-1725-02で止める。
6. 3086を掛ける。Fig. 33参照。

Fig. 27

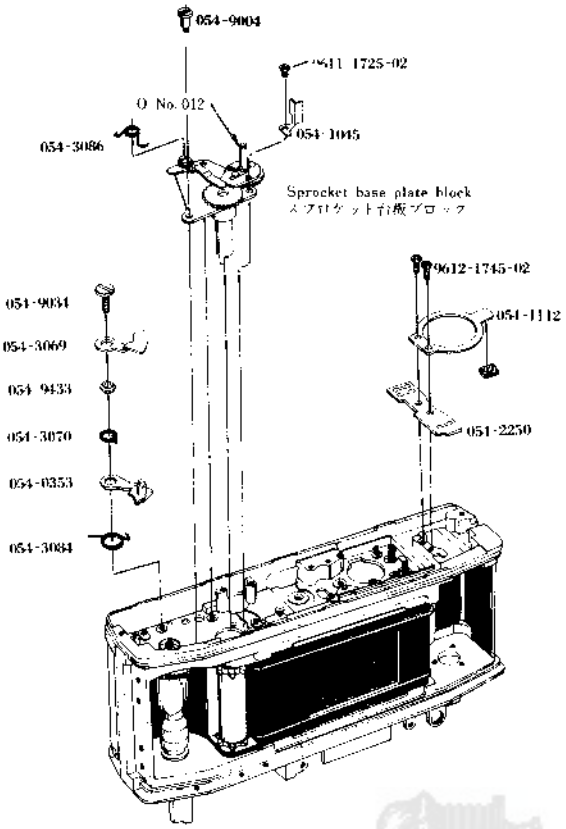


Fig. 28

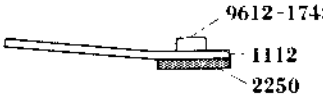


Fig. 29

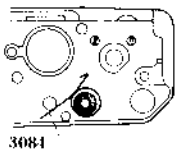
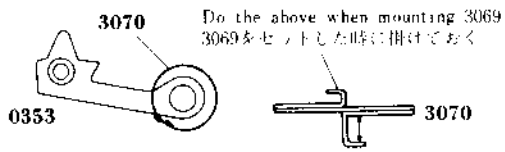


Fig. 30



The longer curved part is hooked onto 0353
折曲げ部の高い方が0353に掛かる

Fig. 32

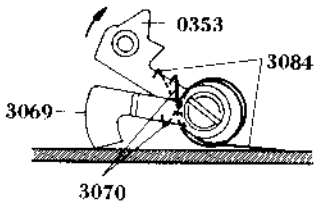
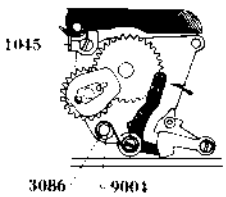


Fig. 31

Higher part of the stage is on the 0353 side
段差の高い方が0353側

Fig. 33



7. Place 3039 and 3037 on 0334, mount them on the body, insert 0347 into the hole in them from the top by matching the screw hole of 0347 with the hole of 0334, and fasten 0347 with 9617-1735-01. Be careful of the sides of 3037. See Fig. 36.
8. Spool block reassembly
   1) Fit 3035, 3036 and 9793-3758-83 in 0334 in that order as shown in Fig. 34. Then assemble them so that the screw hole of 3035 meets with that of 0334.
   2) Tighten 3034 until the screw disappears, and lock 3034 with 9621-1725-02.

7. 0334に3039, 3037を重ね，ボデーにはめ，上部より0347をさし込んで0334の穴に0347のネジ穴を合わせ，9617-1735-01で止める。3037の上下に注意。Fig. 36参照。
8. スプールブロック組立
   1) 3035, 3036, 9793-3758-83をFig. 34の順に0334に入れる。
      この時，3035のねじ穴が0334の穴に合うようにする。
   2) 3034をねじ部分がかくれる程度（Fig. 37）まで締め，9621-1725-02で3034をロックする。

Fig. 34

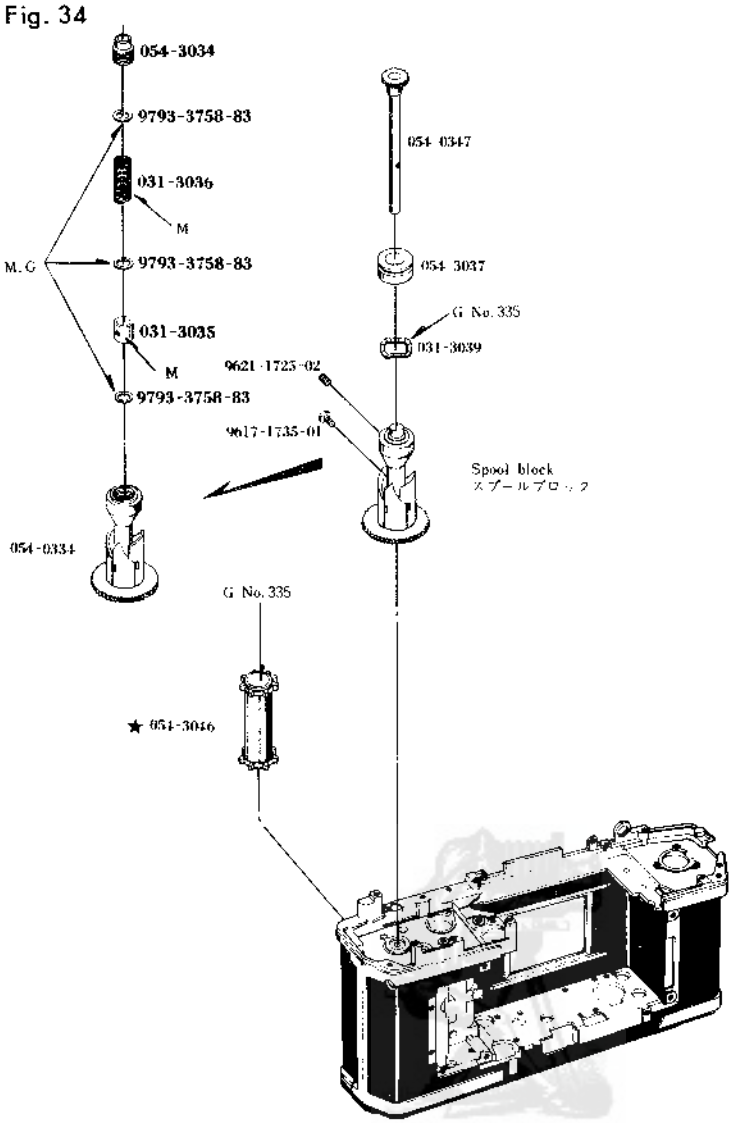


Fig. 35

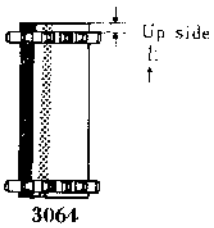


Fig. 36

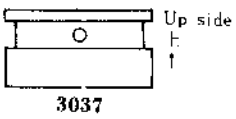
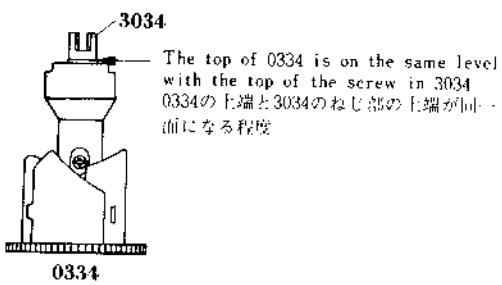


Fig. 37



9. Fit 3099 in 0392, and fasten it with 9612-1745-02 and 9612-1720-02. Be sure that 3099 is in the position illustrated in Fig. 39.
0. Adjust the engagement of the spool gear(See the "HOW TO ADJUST")
1. Hook 3097 as shown in Fig. 39.
2. Pass 9791-3758-40 or 9792-3758-40 through the spool shaft, place 0362 and 0388 on it, and fasten them with 9103. See Fig. 40.
3. Place 9347 and 3066, fix them with 9003 and hook 3067 onto it. See Fig. 40.
4. Place 9792-1850-40 on the body, fasten 2516 with 9029, and hook 2521 onto the screw as shown in Fig. 41.
5. Position 3065 (place it as indicated in Fig. 41-A), 9793-5290-40 and 0220 (place it as shown in Fig. 41), and fasten them with 3072 (left hand screw).
6. Fit 3068 from the inside of the body, hook 3065 onto 0206 by pressing it with a finger, being careful not to knock it down (See Fig. 42 about the hook position), and fasten it with 9612-1730-01 after aligning it with the oval holes in them.
7. Hook 0361 onto 0206, fit 9404 from its bottom and fasten it with 9104 as shown in Fig. 42.

9. 0392に3099をはめ，9612-1745-02，9612-1720-02で止める。3099はFig. 39の位置になること。
0. スプールギヤーゴリ調整（調整編参照）
1. 3097を掛ける。Fig. 39参照。
2. 9791-3758-40又は9792-3758-40をスプール軸に通し，0362，0388を置き9103で止める。Fig. 40参照。
3. 9347，3066を置き，9003で止め3067を掛ける。Fig. 40参照。
4. 9792-1850-40を置き，2516を9029で止め2521を掛ける。Fig. 41参照。
5. 3065（Fig. 41-Aのように置く），9793-5290-40，0220（Fig. 41のように置く）をセットし，3072(左ねじ）で止める。
6. 3068をボデー内側より入れ，脱落しないように指で押えながら3065を0206に掛け（掛け位置はFig. 42参照）小判穴を合わせて9612-1730-01で止める。
7. 0361のフック部を0206に掛け，9404を下から通し，9104で止める。Fig. 42参照。

Fig. 38

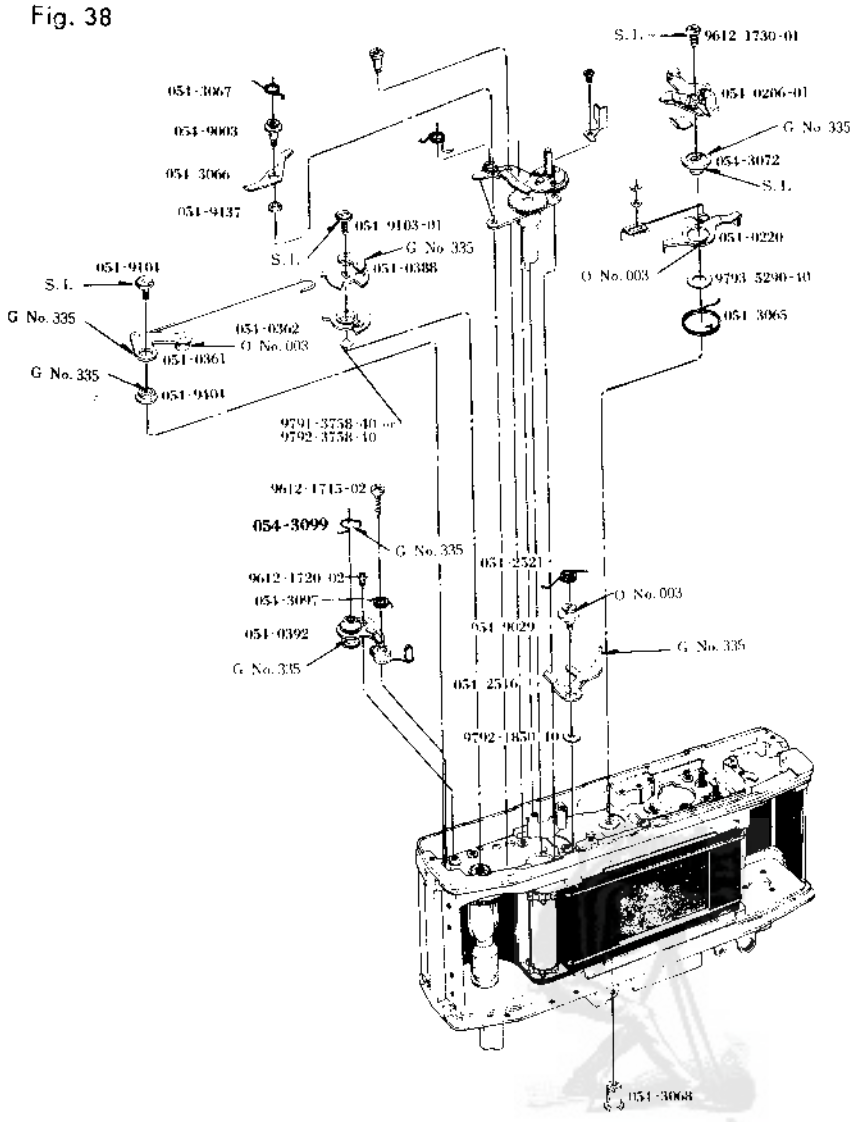


Fig. 39

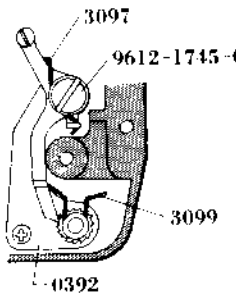


Fig. 40

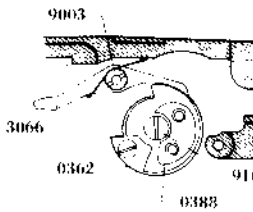


Fig. 41

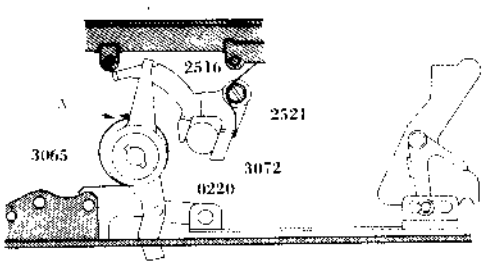
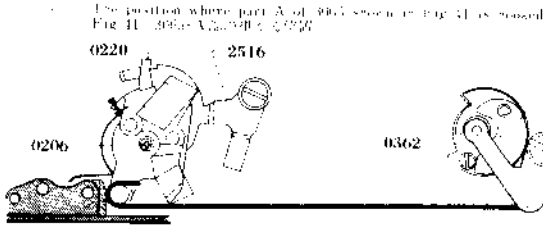


Fig. 42



18. Place 0352, 0375 and 9417, fasten them with 9030 and hook 3056 onto it. Fig. 45. Check that it operates properly.
19. Set 0361, 0388 and 0362 by turning the spool to the position shown in Fig. 46.
20. Insert 0324 from the top of the body and pass 3043 through 0324. By moving the Clutch lever and 3069 as illustrated in Fig. 47, press 0324 to the position where 3069 engages the groove of 0324 and is stopped.
21. Press 3043 down and fasten 9720-0190-00.
22. Adjust the Clutch lever(See the "HOW TO ADJUST")
23. Set the pin of 0622 in the groove of 0220, fasten it with 9613-1725-01, insert 9792-1730-40 into the pin, and fasten it with 9720-0120-00 See Fig. 48.
24. Hook 3083 as shown in Fig. 48.
25. Fasten 0614 with 9136. Then check that the end of 0614 fits into the groove in the end of 0324.

18. 0352, 0375, 9417を置き，9030で止め3056を掛ける。Fig. 45。作動チェック。
19. スプールを回し，0361と0388，0362の関係がFig. 46のようになる位置にする。
20. 0324をボデー上部より入れ，3043を通しクラッチレバー，3069をそれぞれピンセット等で寄せて，Fig. 47の状態にしながら0324の切溝に3069が入り係止される位置まで0324を押し込む。
21. 3043を下に押え，9720-0190-00を止める。
22. クラッチレバー調整(調整編参照)
23. 0622のピンが0220の溝に入るようにセットし，9613-1725-01で止め，0622のピンに9792-1730-40を通し，9720-0120-00で止める。Fig. 48参照。
24. 3083を掛ける。Fig. 48参照。
25. 0614を9136で止める。この時0614の先端が0324の先端の溝に入るようにする。

Fig. 43

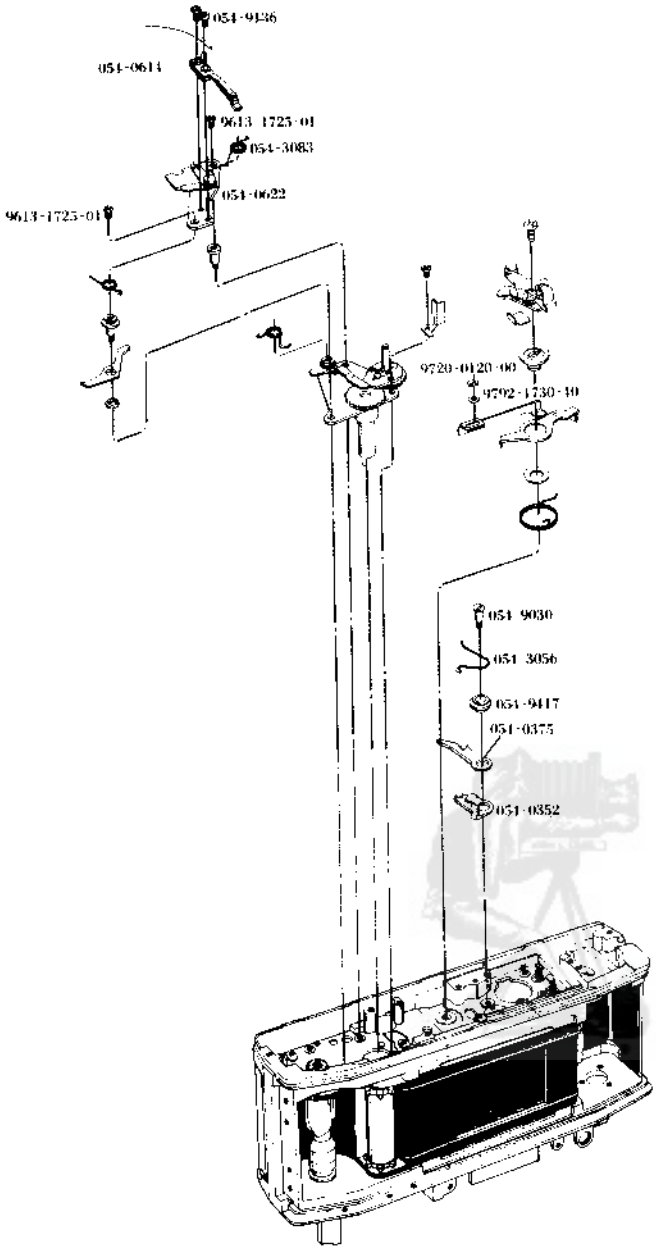


Fig. 44

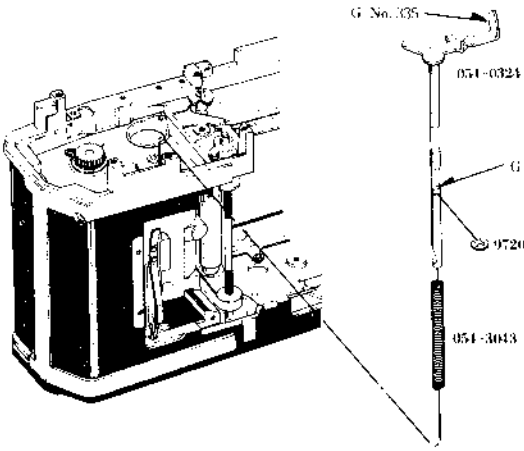


Fig. 45

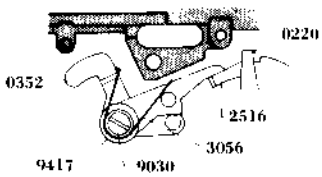


Fig. 46

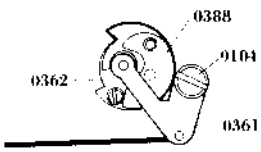


Fig. 47

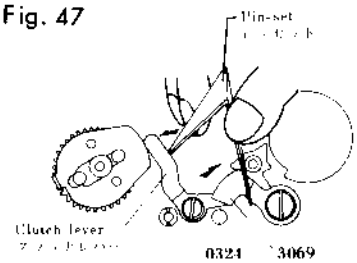
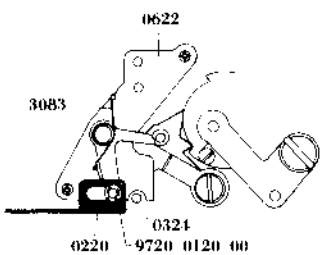


Fig. 48



26. Winding base plate B reassembly
    1) Pass 3006 through 0621, fit 9792-5673-40 into it and fasten it with 3090.
    2) Mount 9123 on 3049, fit the latter into 3006 after passing 3051 through 3049 and fasten it with 9612-1425-01 from the top. Then fit 9123 into the longer groove of 3006 as shown in Fig. 50.
    3) Fit 0624 on the shaft and fasten it with 3413.
    4) Fit 3409 on the shaft of the base plate and fasten it with 3434.
27. Set 3006, 0388 and 0305 in the position illustrated in Fig. 51-A, B and C, mount 0621 assembled as above on the base plate, and fasten them with 9611-1725-02 and 9127.
    Note: When mounting 0621, move 3066 (Page. 16) if it contacts with 3049.
28. Hook 3414 as shown in Fig. 52, turn the groove of 0624 in the direction of the Strap hanger and fasten 3418 and 9792-1730-40 with 9720-0120-00 after mounting them on the plate. See Fig. 52.
29. Fasten 9720-0190-00.

26. 捲上台板B組立
    1) 0621に3006を通し，9792-5673-40をはめ3090で止める。
    2) 3049に9123を止め，3051を通して3006にはめ，上部より9612-1425-01で止める。この時9123が3006の長い方の溝に入るようにする。Fig. 50参照。
    3) 軸に0624をはめ，3413で止める。
    4) 3409を入れ，3434で止める。
27. 3006，0388，0305をFig. 51-A，B，Cの位置にして上記1)～4)で組立てた0621を組込み，9611-1725-02，9127で止める。
    注) 0621組込の際，3066（Page. 16）に3049が当たるのでその時は3066を逃がしてやる。
28. 3414をFig. 52のように掛け，0624の溝が吊環の方向に向くように回し，3418，9792-1730-40，をはめ，9720-0120-00で止める。Fig. 52参照。
29. 9720-0190-00を止めておく。

Fig. 49

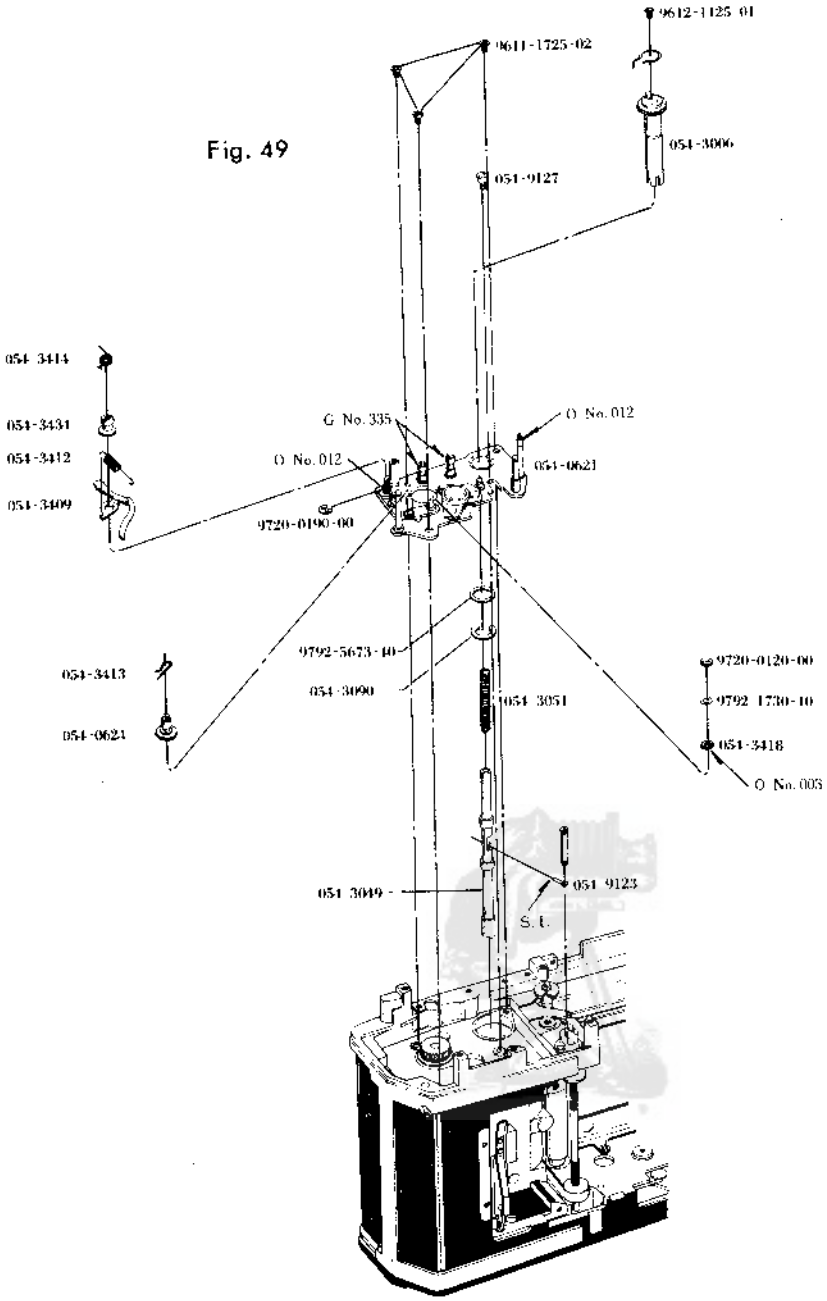


Fig. 50

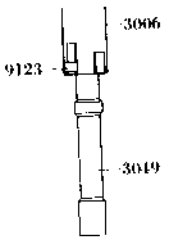


Fig. 51-A

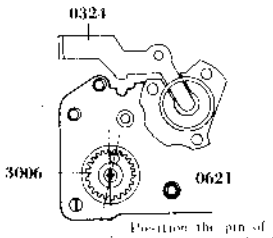


Fig. 51-B

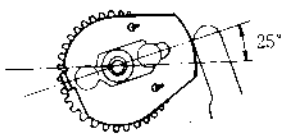


Fig. 51-C

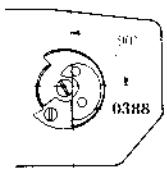
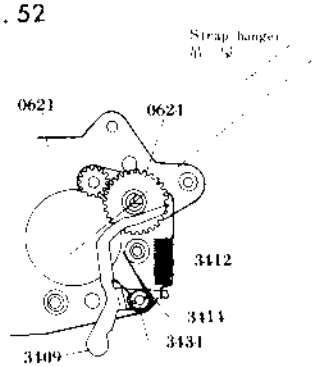


Fig. 52



30. Fit 3025 so that 3026 is in the groove of 3025, and fasten it with 9720-0120-00. See Fig. 54.
31. Fit 3003 and 3004 on the shaft and fasten 0236 (Page. 24) with 9612-1720-02 (Page. 24).
32. Fasten 3053 (left hand screw).
33. Release stop lever axis reassembly
    1) Set 0609, 0632, 4314, 9791-1850-40 (or 9792-1850-40), 9720-0120-00, 0608, 2031 and 9791-1850-40 (or 9792-1850-40) on 2081 in that order in the positions shown in Fig. 55, and fasten them with 9720-0120-00.
    2) Check that each lever of 0608, 0632 and 0609 operates smoothly.
34. Fasten 2024, place 2048 as shown in Fig. 56, and hook 2048 and 4314 while setting the above assembled Release stop lever axis (2047). See Fig. 57.
35. Hook 2031 as indicated in Fig. 57.
36. Set 4313 in 0410, hook it onto the shaft (2025) of 0621, and mount 0410 by moving 0247 into the position where each lever is shown in Fig. 58. Don't make a gap between the release stopper of 0410 and 0632 illustrated in Fig. 58-A.

30. 3026が3025の溝に入るように3025を入れ，9720-0120-00で止める。Fig. 54参照。
31. 3003，3004を軸に入れ，0236（Page. 24）を9612-1720-02（Page. 24）で止める。
32. 3053（左ねじ）を止める。
33. 係止レバー軸ブロック組立
    1）2081に0609，0632，4314，9791-1850-40（又は9792-1850-40），9720-0120-00，0608，2031，9791-1850-40（又は9792-1850-40）の順にFig. 55のような状態になるようにセットし，9720-0120-00で止める。
    2）0608，0632，0609の各レバーが軽く動くことをチェックする。
34. 2024を止め，2048をFig. 56のように置き，上記で組立てた係止レバー軸ブロック（0247）をセットしながら2048，4314を掛ける。Fig. 57参照。
35. 2031を掛ける。Fig. 57参照。
36. 0410に4313をセットし，一端を0621の軸（2025）に掛け0247を寄せながら各レバーがFig. 58の状態になるように0410をはめ込む。Fig. 58-A部の0410と0632の係止部は段差がないこと。

Fig. 53

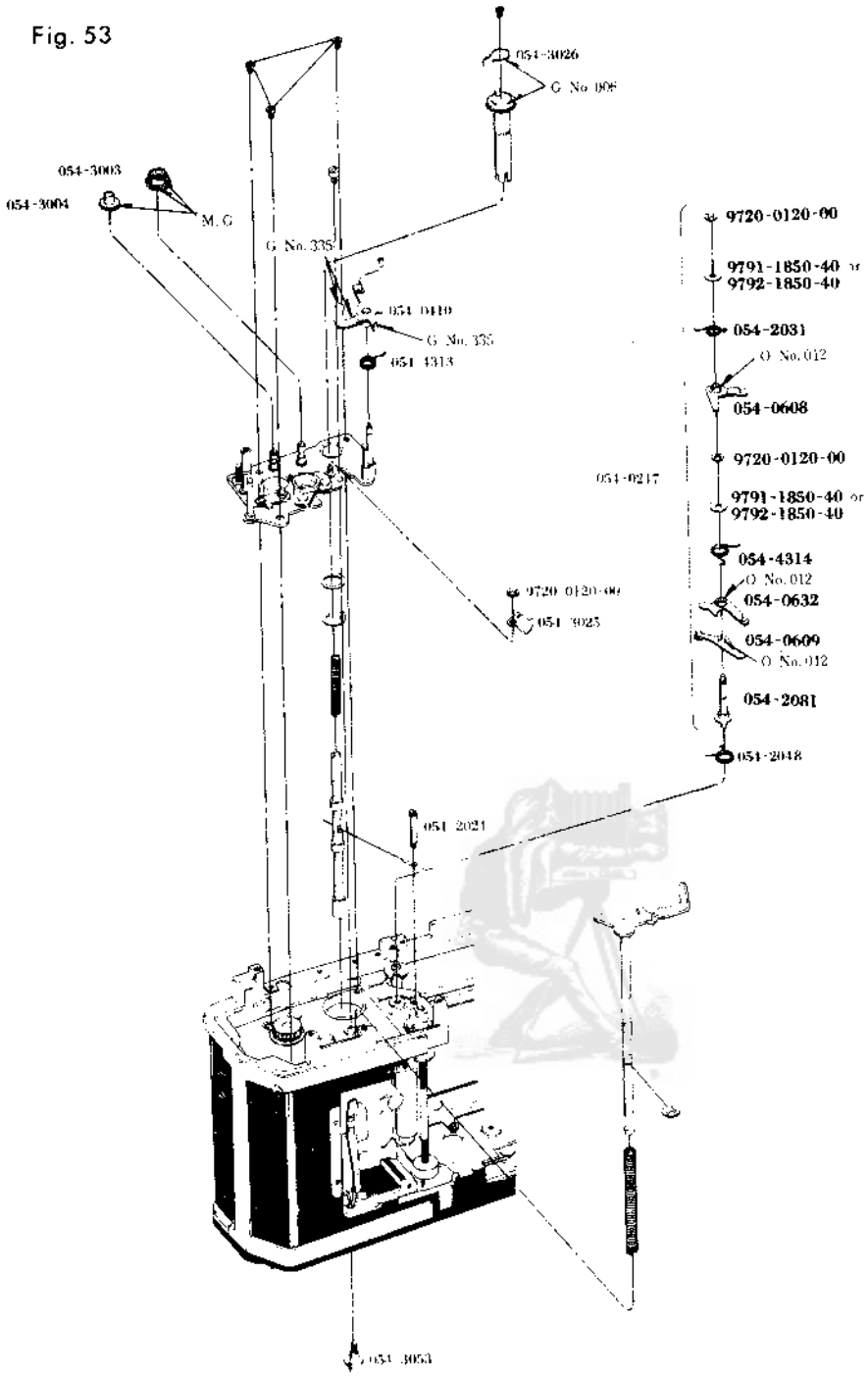


Fig. 54

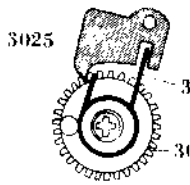


Fig. 55

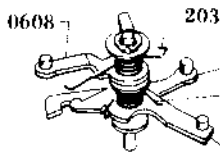


Fig. 56

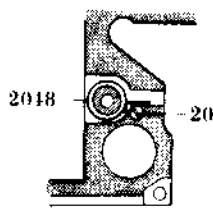


Fig. 57

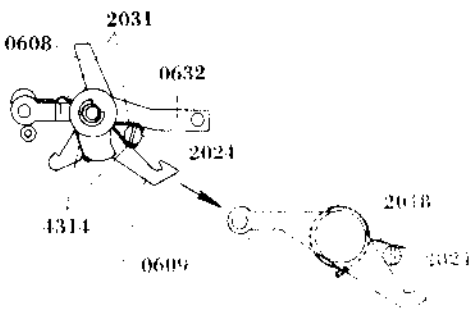
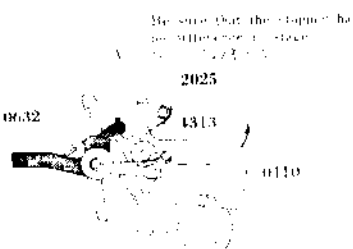


Fig. 58



37. Set 0409 so that the pin of 0410 is in the groove, and fasten it with 9119 and 9612-1417-01.
38. Insert 9791-1838-40.
39. Hook 2035 onto 0233 as shown in Fig. 60, fit the spring (2023) onto the shaft while pulling it with a pair of pliers so that its position related to 0608 is as shown in Fig. 60, and fasten it with 9720-0120-00. Hook 2023 onto 2025. See Fig. 60.
Note: When 0233 is loose, 0608 moves under 0233.
40. Clean the contact surface of 4025 and 4026 (fasten this on 0233 with 9720-0120-00) with ether, push 0410 in the direction of the arrow illustrated in Fig. 61, move 4025 (pass this through 0627) in the direction of the arrow shown in Fig. 62 after winding (0410 and 0632 are stopped as shown in Fig. 61-A). Then fasten 4025 with 9612-1750-01 at the position where the contact surface of 4025 and 4026 are correctly held in place.
41. Overcharge lever-A adjustment (See the "HOW TO ADJUST")
42. Shutter base plate-A reassembly (See Page. 27).
43. Set the Shutter base plate-A block reassembled on Page. 27 so that the FP contact lever and 0632 are positioned as illustrated in Fig. 63. Do this setting when 0410 and 0632 are freed, as it is easier.
44. After checking that the Shutter base plate-A block is fastened tightly, place 4323 and 4339 on the block (just place them as indicated in Fig. 64 without hooking) and fasten them with 9028.
45. Then place 0414 (Page. 28) and 0417 (Page. 28) on the above block and fasten them with 9136.
46. SW 6 adjustment (See the "HOW TO ADJUST")

37. 0410のピンが溝に入るように0409をセットし，9119，9612-1417-01で止める。
38. 9791-1838-40を入れる。
39. 0233に2035をFig. 60のように掛け，スプリング（2023）をピンセットで引張りながら軸に入れ0608との関係がFig. 60の状態になるようにし，9720-0120-00で止める。2023は2025に掛ける。Fig. 60参照。
注）0233が浮いていると0608が0233の下にもぐり込んでしまう。
40. 4025，4026（9720-0120-00で0233に止める）の吸着面をエーテル等で清掃し，0410をFig. 61矢印方向に押し，捲上セット状態（0410と0632が係止されている状態……Fig. 61-A部）にして4025（0627を通す）をFig. 62矢印方向に寄せ，かつ4025と4026の吸着面がずれない位置にして，9612-1750-01で止める。
41. オーバーチャージレバーA調整（調整編参照）
42. シャッター台板A組立（See page. 27）
43. Page. 27で組立てたシャッター台板AブロックをＦＰ接片レバーと0632の関係がFig. 63の状態になるようにセットする。この時，0410と0632の係止が外れている状態でセットするとしやすい。
44. シャッター台板Aブロックに浮き，ガタのないのを確認して4323，4339（Fig. 64のように置くのみで掛けない）を置き9028で止める。
45. 0414（Page. 28），0417（Page. 28）を置き9136で止める。
46. ＳＷ６調整（調整編参照）

Fig. 59

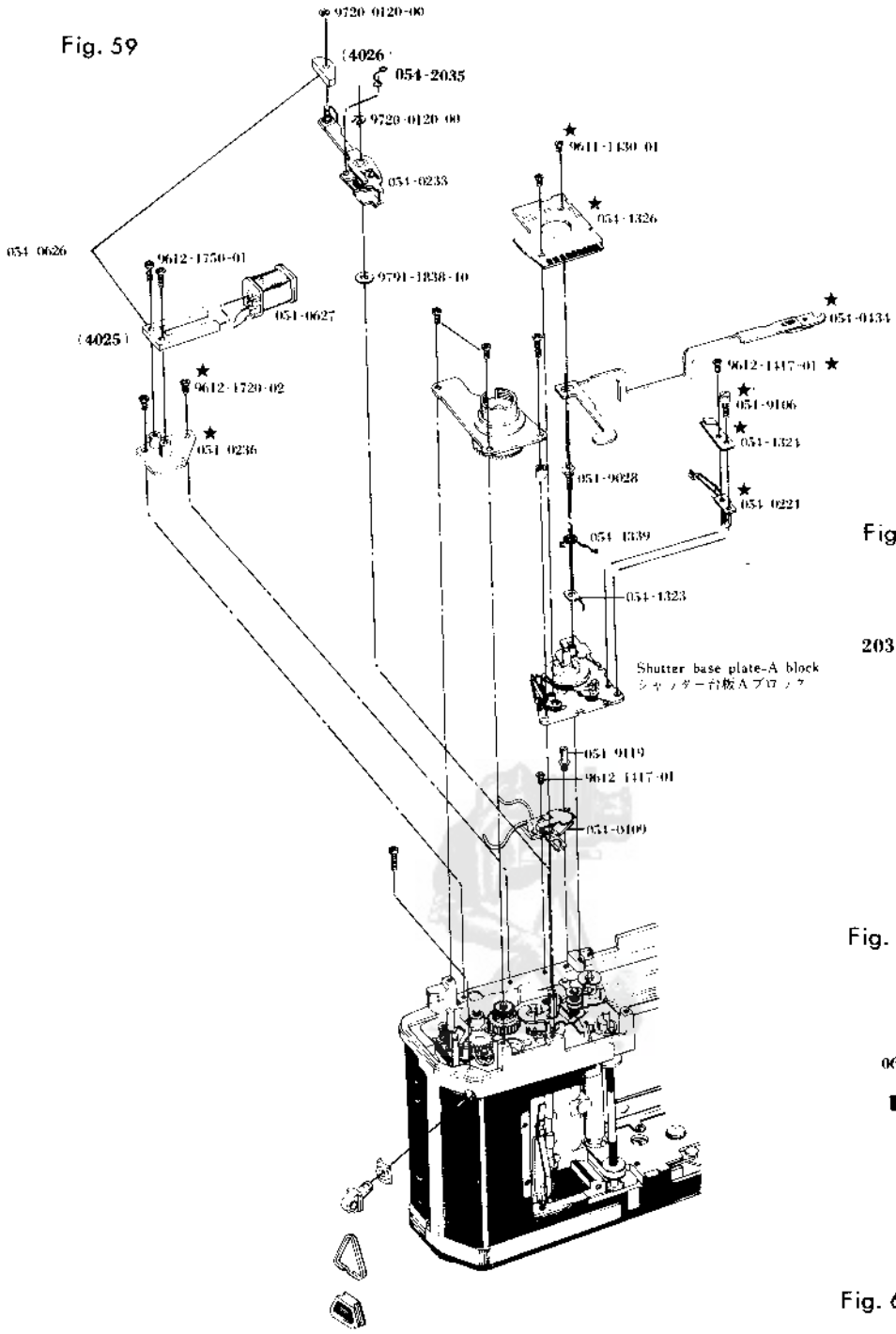
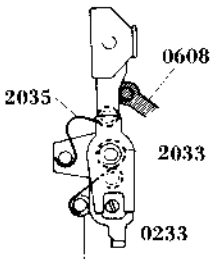


Fig. 60



2033 Coupled p
0233のセ

2025 Coupled part of 062
0621のセット部品

Fig. 61

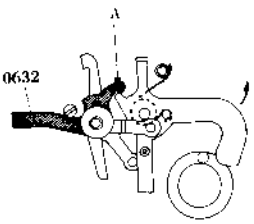
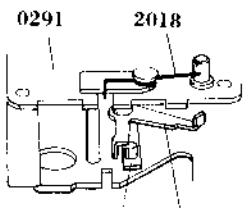


Fig. 63



FP conta
FP接点

Fig. 62

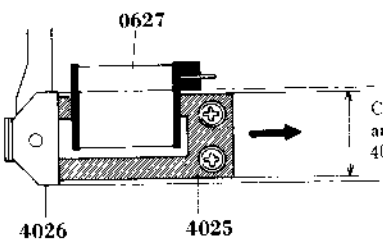


Fig. 64

47. Mount 9792-2645-40 on the block, hook the spring (3411) of 0623 onto the shaft and give a turn to it until the stopper climbs over 0624. See Fig. 66.
48. Fasten 3402 with 9102 at the position where it turns to the front.
49. Winding base plate-A block reassembly
    1) Insert 3017 into 0620 and further insert 9791-8101-40 or 9792-8101-40 and 3018 into it from the bottom. Be sure that each part is correctly positioned. See Fig. 68.
    2) Hook the end of 3022 onto part A shown in Fig. 68, fasten 3076 (left hand screw) and hook the other end of 3022 as shown in Fig. 70.
    Caution: Be sure to hook the smaller hanger of 3022 onto 3018. See Fig. 69.
    3) Insert 3078 and 3077 (face their bent parts down), fit in 3001 and fasten them with 3089.
50. Place 9410, mount the Winding base plate-A block reassembled above, and fasten them with 9612-1730-01 and 9612-1780-01.
51. Mount the Winding lever and the Shutter button temporarily.

47. 9792-2645-40をはめ，0623のスプリング（3411）を軸に掛け，一回転させてストッパーが0624を乗り越えたところで止める。Fig. 66参照。
48. 3402が正面を向くような位置にして9102で止める。
49. 捲上台板Aブロック組立
    1) 3017を0620にはめ下側より9791-8101-40又は9792-8101-40，3018をはめる。方向に注意。Fig. 68参照。
    2) 3022の一端をFig. 68-A部に掛け3076（左ねじ）を止め，3022の一端を掛ける。Fig. 70参照。
    注）3022のフック部の小さい方を3018に掛ける。Fig. 69参照。
    3) 3078，3077（折り曲げ部を下）を入れ，3001をはめ3089で止める。
50. 9410を置き，上記で組立てた捲上台板Aブロックをセットし，9612-1730-01，9612-1780-01で止める。
51 捲上レバー，シャッター釦を仮にセットする。

Fig. 65

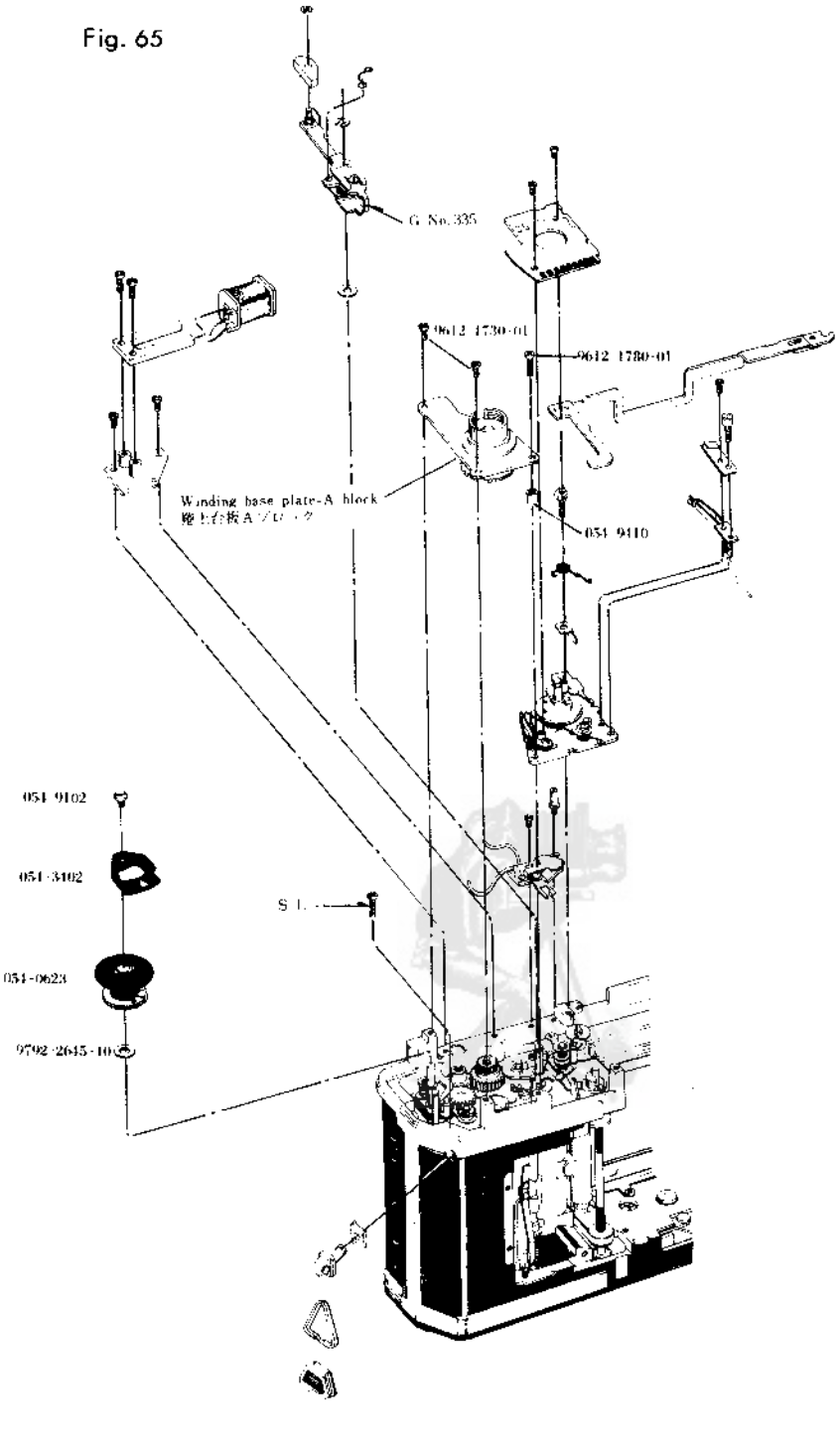


Fig. 66

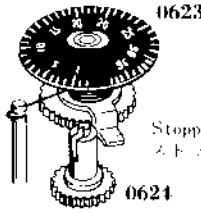


Fig. 67

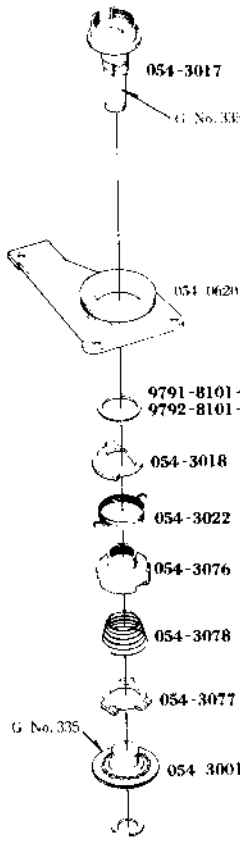


Fig. 68

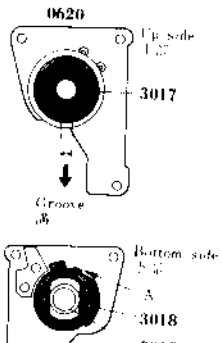


Fig. 69

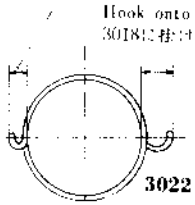
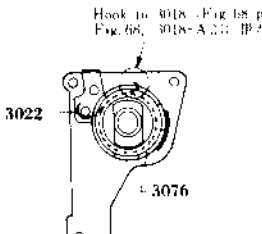


Fig. 70



52. Shutter base plate A reassembly

1) Place 2017, 2010, 9415, 2009, 2008 and 0605 in that order, and fasten them with 9613-1430-01. Set them with attention to their sides. See Fig. 72.
After fastening, be sure that 2009 operates smoothly.
2) Hook 2018 (Fig. 73) and insert the block reassembled in paragraph 1 above onto the shaft of 0291 until it clicks.
3) Insert 0606 into 0291 as shown in Fig. 74.
4) Place 2016 and fix in 2014, and fasten them with 9414. See Fig. 74.
5) Hook 2016 as indicated in Fig. 74. Check that it operates correctly.

52. シャッター台板A組立

1) 2017, 2010, 9415, 2009, 2008, 0605を重ね, 9613-1430-01で止める。裏表に注意してセットすること。Fig. 72参照。
ネジ止め後2009が軽く動くことを確認する。
2) 2018を掛け (Fig. 73) 0291の軸に1) で組立てたブロックをクリックがかかる位置まで入れる。
3) 0606をFig. 74の状態になるように0291に入れる。
4) 2016を置き, 2014をはめ9414で止める。Fig. 74参照。
5) 2016を掛ける。Fig. 74 作動チェック。

Fig. 71

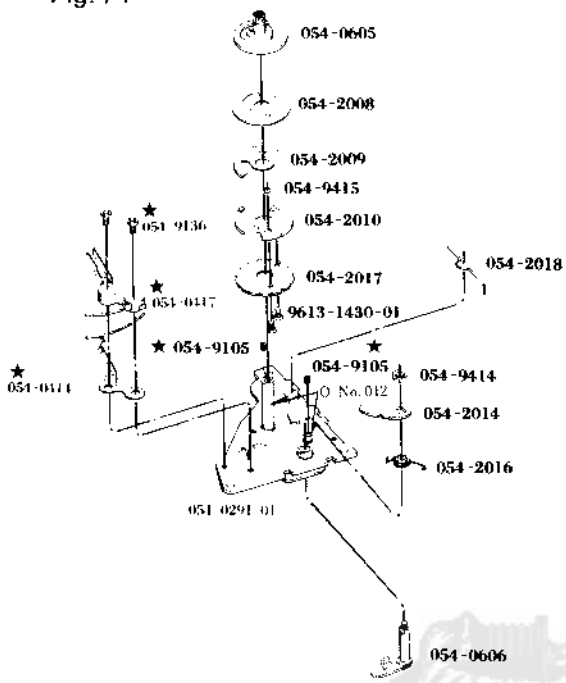


Fig. 72

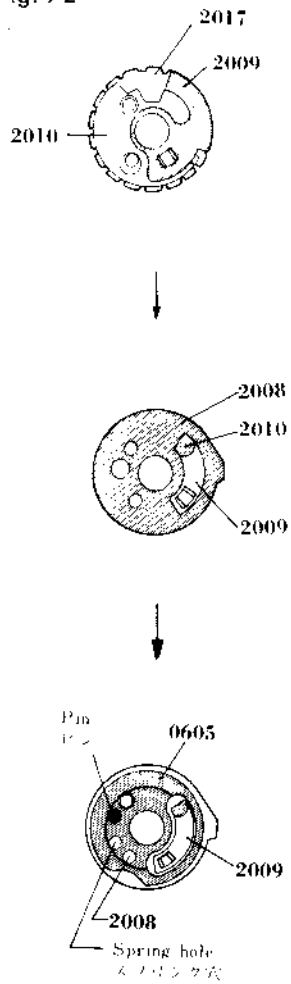


Fig. 73

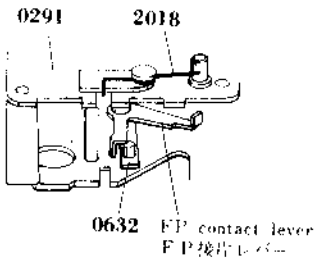
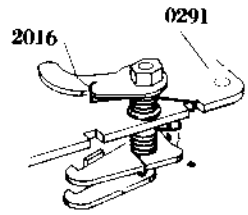


Fig. 74



53. Cross 0610 and 0611 as shown in Fig. 75, insert 2069 (with attention to its top and bottom and 9796-2050-20 into 0610, and mount it on the rewinding side of the body as shown in Fig. 77.
54. Insert 9405 and 9402 onto the shaft from the bottom and fasten 2076 with 9611-1740-01.
55. Fasten 2073 (left hand screw), wind the curtain springs 5 times for the 1st curtain and two times for the 2nd curtain, and fix in 2072 when the curtains are rolled in the spring tubes.
56. Fasten 9621-1421-01.
57. Screw 9105 (See Page. 28) until its head comes to about 0.5mm from the tip of 0291 (See Page. 28).
58. Turn the winding lever until 0410 and 0632 are stopped, cross 0610 and 0611 as shown in Fig. 79 and fix in 0611 in that order so that they are positioned as shown in Fig. 77.
59. Turn the gear on the lower part of 0611 until 0247 just comes onto the 2nd curtain stop plate. See Fig. 80.
60. Similarly, turn the shaft of 0610 until it is stopped by 0609. See Fig. 80.

53. 0610, 0611をFig. 75のように交差させ，0610に2069（上下注意），9796-2050-20を入れ，Fig. 77のようになるようにボデー捲戻側にセットする。
54. 9405, 9402を下部より軸に入れ，2076を9611-1740-01で止める。
55. 2073（左ねじ）を止め幕スプリングを1幕5回転，2幕を2回転チャージし，幕がスプリング筒に捲込まれた状態にして2072をはめる。
56. 9621-1421-01を止める。
57. 9105（See page. 28）の頭を0291（See page. 28）の先端より 0.5mm程度中に入ったところまで締める。
58. 捲上レバーを回し，0410と0632が係止されている状態にし，0610, 0611をFig. 79のように交差させ，Fig. 77のようになるように0611, 0610の順に組込む。
59. 0611の下部のギヤーを回し，最初に0247が2幕係止板に入り込む位置で止める。Fig. 80参照。
60. 同様に0610の軸を0609により回転がストップされる位置まで回す。Fig. 80参照。

Fig. 75

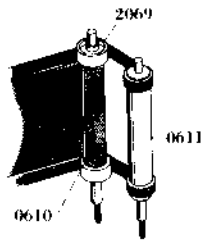


Fig. 76

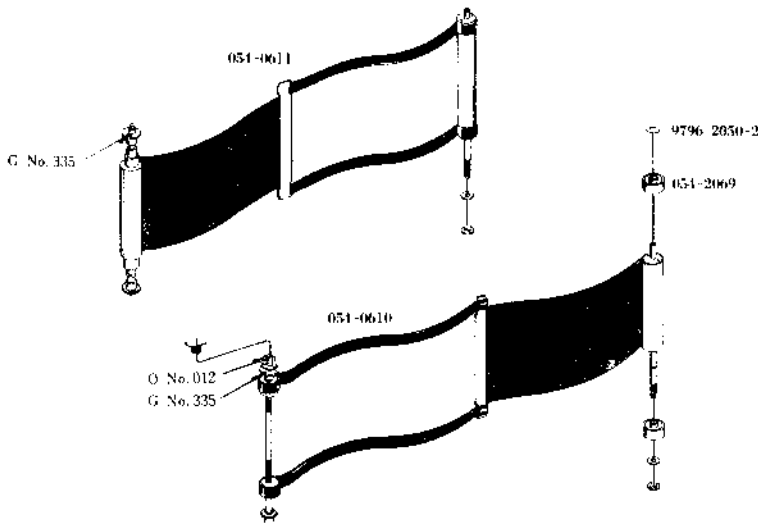


Fig. 77

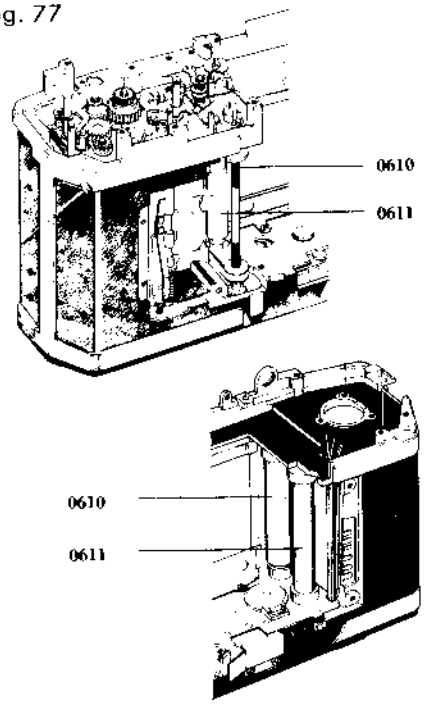


Fig. 78

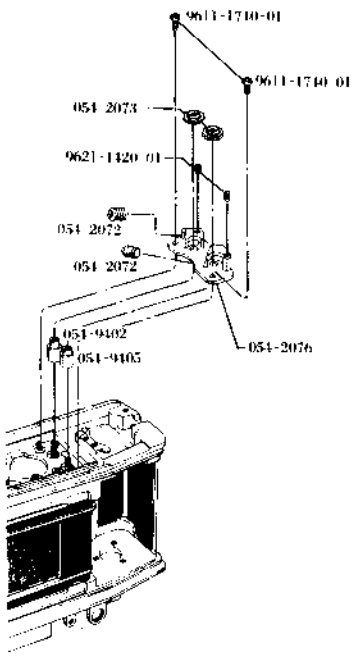


Fig. 79

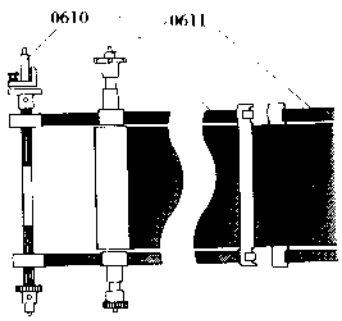
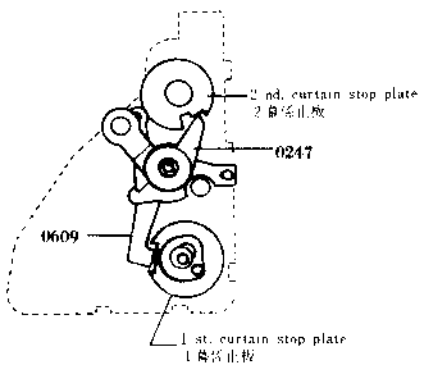


Fig. 80



61. While maintaining the conditions in assembly steps 59 and 60 on Page. 29, engage the gear of 0293 with that of 0610 so that the punch mark on 0293 is directed toward the shaft of 0305 on the lower part of the body as shown in Fig. 82-A.
62. Mount 9791-1735-40, and engage the gear of 0298 with that of 0611 so that the punch mark on 0298 is positioned, similar to step 61 above, as shown in Fig. 82-B, while holding the gear of 0293 in place.
63. Position 0292 so that the shafts of 0610, 0611 and 0305 coincide with one another, and fasten it with 9613-1730-01. In this case, be sure that the engagement of the respective gears remains unchanged.

    Caution: Do not run the shutter curtains until assembly step 70 (the brake is mounted) is completed.
64. Remove 9105 mounted on Page. 29 and then reset it after oiling it.
65. Adjust the curtain shaft shake(See the "HOW TO ADJUST")
66. Set 0406 so that the lever tip of 0352 fits into the hole of 0406, and fasten it with 9612-1735-01. See Fig. 83.
67. Fasten 1013 with 9612-2340-01 at the two places. See Fig. 83.

61. Page. 29組立行程59, 60の状態のままでボデー下部の0305の軸に0293のマーク（ポンチマーク）がFig. 82-Aの方向に向くように0610のギヤーと噛み合わせる。
62. 9791-1735-40を入れ，0293のギヤー位置がずれないように注意しながら上記同様に0298のマーク（ポンチマーク）がFig. 82-Bの方向に向くように0611のギヤーと噛み合わせる。
63. 0292を0610, 0611, 0305の軸が合うようにはめ込み，9613-1730-01で止める。
    この時，各ギヤーの噛み合わせが変らないように注意のこと。
    注）組立行程70が終るまで(ブレーキをセットするまで)絶対にシャッター幕を走行させないこと。
64. Page. 29でセットした9105を一旦外し，オイルを注入し再び9105をセットする。
65. 幕軸ガタ調整（調整編参照）
66. 0406の穴に0352のレバーの先端が入るように0406をセットし，9612-1735-01で止める。Fig. 83参照。
67. 1013を9612-2340-01で2カ所だけ止める。Fig. 83参照。

Fig. 81

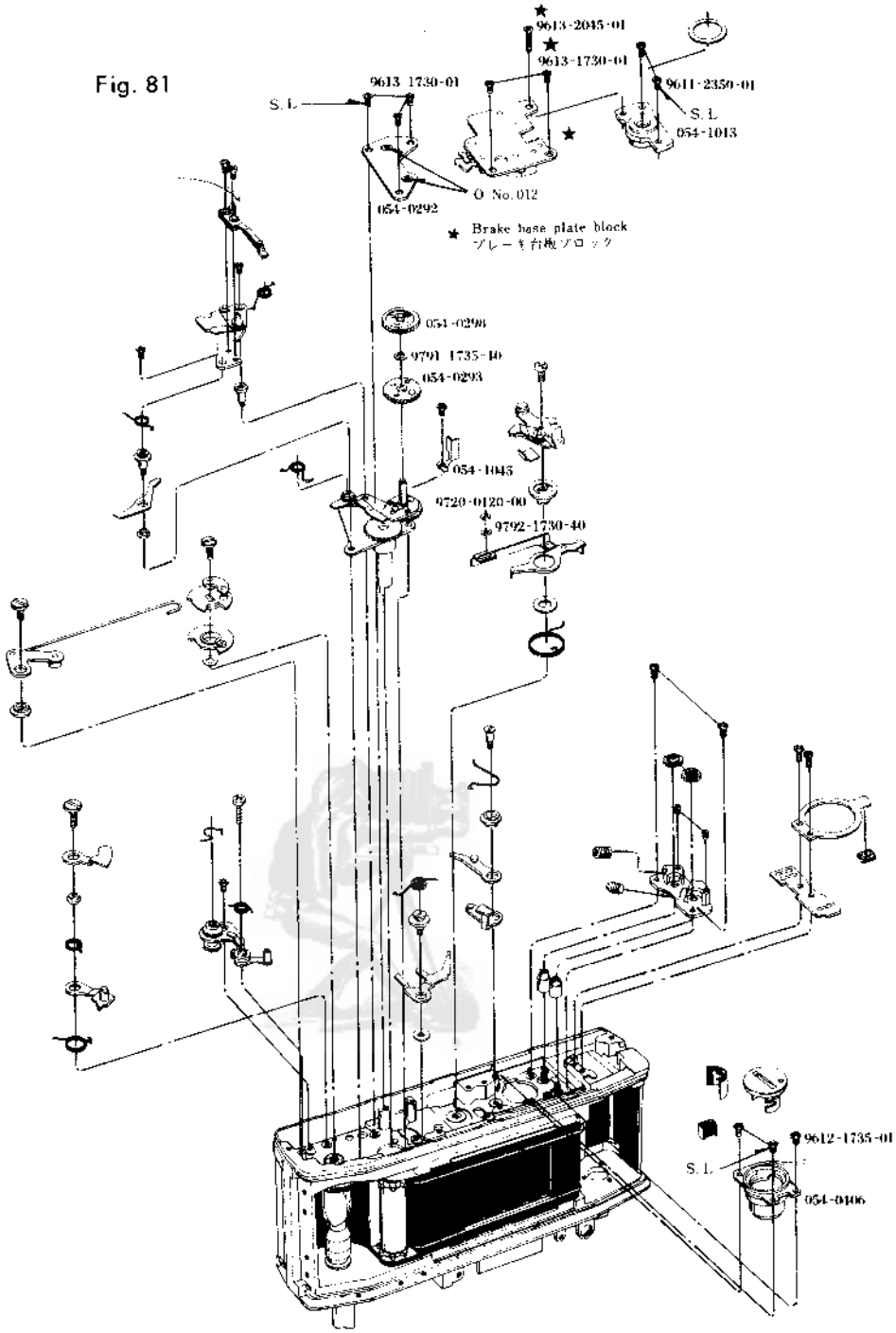
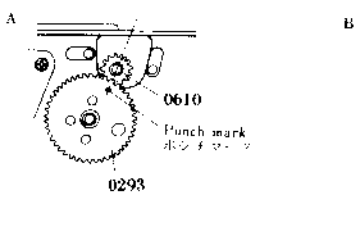
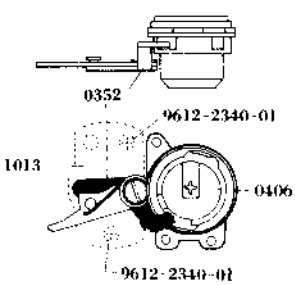


Fig. 82



Mount 0293 and 0298 so that their punch marks are directed toward the respective gear centers of 0610 and 0611.
0293、0298のポンチマークが0610、0611それぞれのギヤー中心に向くように0293、0298をセットする

Fig. 83



68. Assemble the brake base plate block as shown in Fig. 85. Then adjust the space between the "X" contacts by bending the "X" contact B (2119) to 0.4mm when the brake lever is returned to its original position by 2130. See Fig. 85.
69. Depress the lever of 0632, and turn the winding lever after releasing 0410 and 0632 from their stop positions. Then wind the shutter curtains.
70. Set the Brake base plate block and fasten it with 9613-1730-01 and 9613-2045-01. See Page. 32.
71. Shutter button release cam adjustment (See the "HOW TO ADJUST")
72. When the shutter is released (0220 is returned in the direction of the arrow shown in Fig. 87), overlap 2517, fasten their ends with 9038, and hook the other ends onto 0220. See Fig. 87.
73. Fasten 1025 with 9611-1720-02.
74. Brake adjustment (See the "HOW TO ADJUST")
75. Curtain speed and kick cam adjustment (See the "HOW TO ADJUST")
76. Mount 0224 and 4324, and fasten them with 9106 and 9612-1417-01 (See Page. 24). In this case, move the contacts of 0224 in the directions of the arrows shown in Fig. 88 so that the space between the contacts becomes 0.2 to 0.3mm.
    Caution: When setting 0224, pay attention to the FP contact A which should not come under the FP contact lever.
77. Winding release lever adjustment (See the "HOW TO ADJUST")

68. ブレーキ台板ブロックをFig. 85のように組立て，ブレーキレバーが2130の力で戻っている状態の時，X接点の間隔が 0.4mmであるようにX接片B (2119) を曲げて調整しておく。Fig. 85参照。
69. 0632のレバーを押し，0410と0632の係止を解除させて捲上レバーを回し，シャッター幕を捲上げる。
70. ブレーキ台板ブロックをセットし，9613-1730-01，9613-2045-01で止める。See page 32。
71. シャッター釦解除カム調整（調整編参照）
72. シャッターを切った状態（0220がFig. 87矢印方向に戻っている状態）で2517を重ね，9038で止めて一端を上下より0220に掛ける。Fig. 87参照。
73. 1024を9611-1720-02で止める。
74. ブレーキ調整（調整編参照）
75. 幕速，ケリカム調整（調整編参照）
76. 0224，4324を置き，9106，9612-1417-01で止める（See page. 24）。この時，捲上げた状態で0224の接片間の隙間が0.2～0.3mm程度になるようにFig. 88の矢印方向にずらせる。
    注）0224セットの際ＦＰ接片ＡがＦＰ接片レバーの中に入り込まないように注意。
77. 捲上解除レバー調整（調整編参照）

Fig. 84

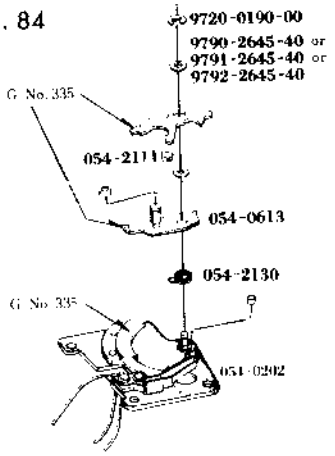


Fig. 85

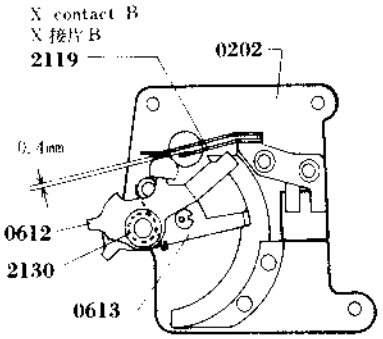


Fig. 86

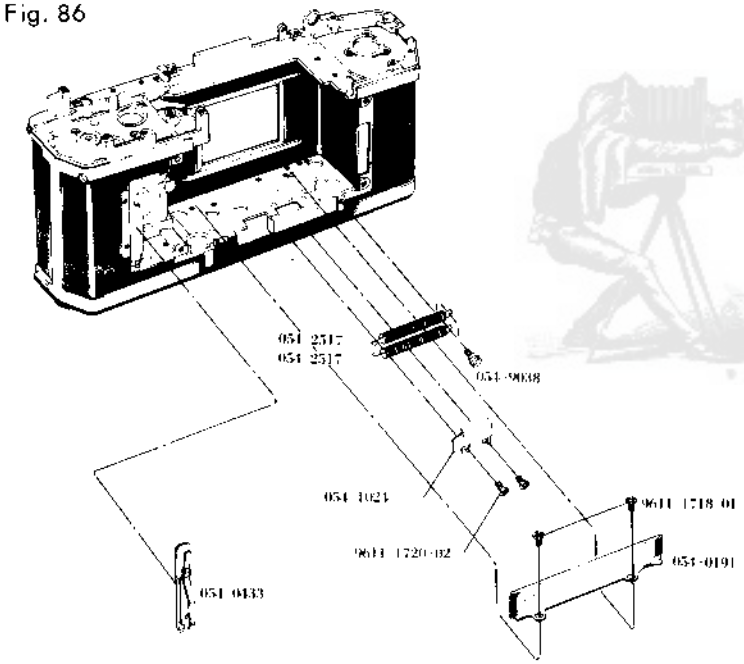


Fig. 87

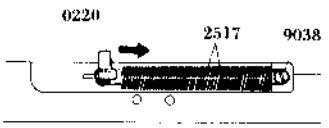
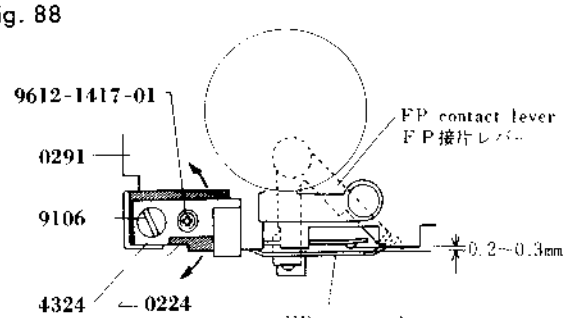


Fig. 88



78. Fasten 3310 with 9612-2035-01, and also fasten 3304 with 3307 and 3308.
79. Mount 9413 and 1108, and fasten them with 1111 and 9613-1735-12. In this case, be sure that the curved part of 1108 comes above 1112 as shown in Fig. 90. Pay attention to the direction of 1111.
80. Position 0437 and fasten it with 9024 and 9112.
81. Mount 4329 and 4359, and fasten them with 9612-1725-02. Be sure to distinguish 4329 from 4359.
82. Mount 9431 and 5206, fasten them with 9008, and hook 5208 as shown in Fig. 91.
83. Position 0317 and temporarily fasten it with the nut (054-3304-77).
84. Solder circuit base plate and synchro circuit (See the "Wiring Schematic Diagram").
85. Hook 5217 onto 9024, set 0434 (See Page. 24) and hook 4339 (See Page. 24) as indicated in Fig. 92.
86. Fasten 4326 (See Page. 24) with 9611-1430-01, then solder it (See the "Wiring Schematic Diagram").
87. AM change SW adjustment (See the "HOW TO ADJUST")

78. 3310を9612-2035-01で止め，3304を3307，3308で止める。
79. 9413，1108を置き，1111，9613-1735-12で止める。この時，1108の下部曲げ部が1112の上になるようにする。Fig. 90参照。1111の向きに注意。
80. 0437をはめ，9024，9112で止める。
81. 4329，4359を重ね，9612-1725-02で止める。4329，4359を間違えないこと。
82. 9431，5206を置き，9008で止め，5208をFig. 91のように掛ける。
83. 0317をはめ，仮ナット（054-3304-77）で止めておく。
84. 回路基板，シンクロ回路ハンダ付け（立体配線図参照）。
85. 9024に5217を掛けておき，0434（See page. 24）をセットし，4339（See page. 24）を掛ける。Fig. 92参照。
86. 4326（See page. 24）を9611-1430-01で止め，ハンダ付けする（立体配線図参照）。
87. AM切換SW調整（調整編参照）

Fig. 89

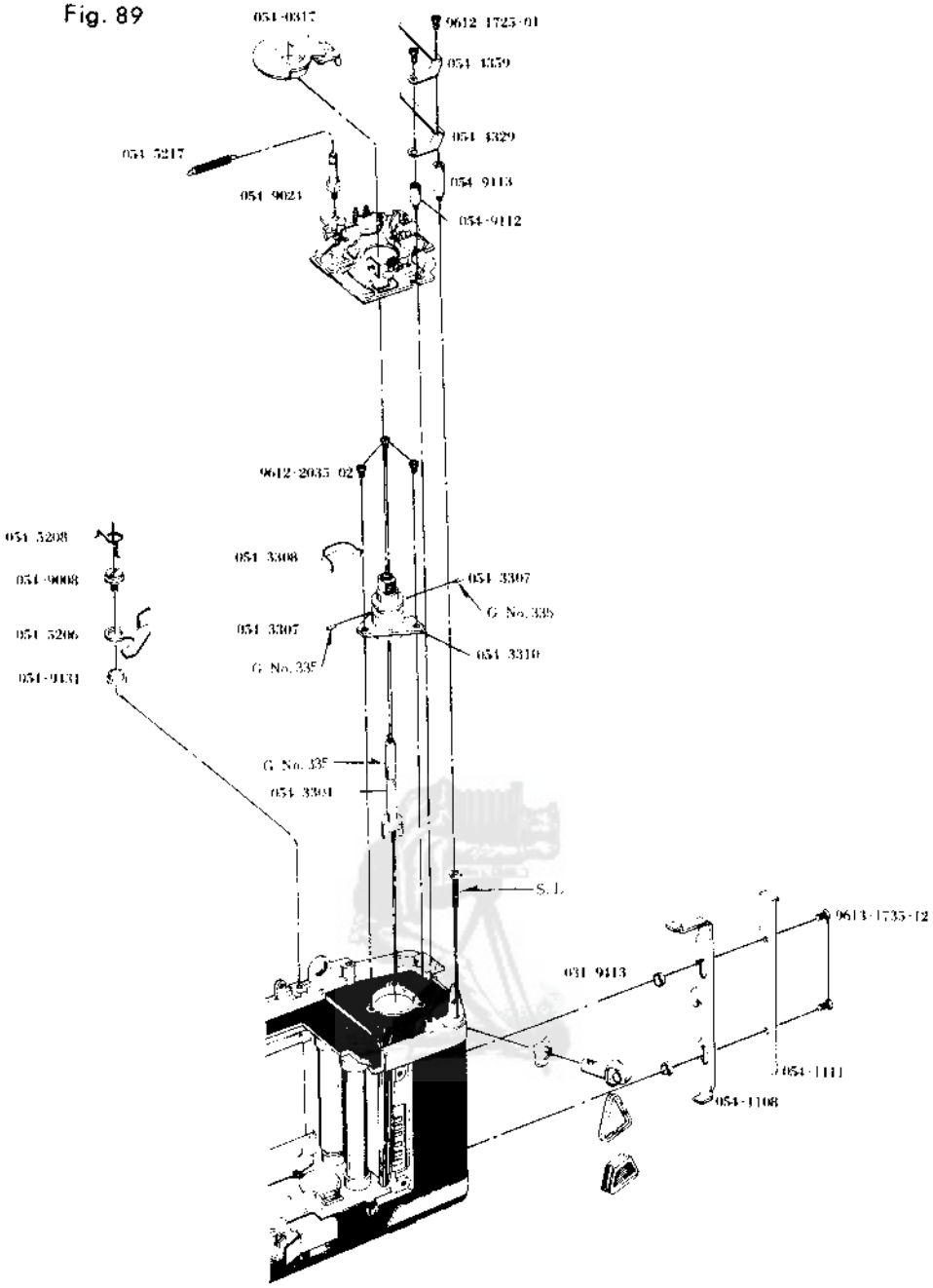


Fig. 90

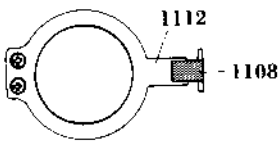
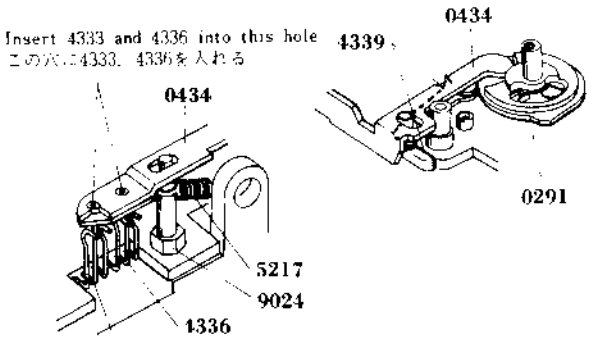


Fig. 91

Fig. 92



88. After charge the shutter and the mirror box, mount the latter on the body, fasten it with 9129 and hook 5217 as shown in Fig. 94. Be sure that the cam of the self-gear does not climb over the shutter shaft. Synchro continuity check, solder read wires of SW 3 (See the "Wiring Schematic Diagram").
89. Fasten 0528 with 9612-1750-02 and solder them (See the "Wiring Schematic Diagram).
90. Fasten 0101 with 9613-1725-02 and bond 1019 to it.
91. Checking and adjustment
    1) Shutter start lever adjustment
    2) SW 4 and Magnet "OFF" timing adjustment and SW 4 chattering check
    3) Shutter speed adjustment
    4) Auto shutter speed adjustment
    5) Synchro time lag and contact efficiency adjustment
    6) Double exposure adjustment
    7) Penta lock stroke adjustment
    8) Body back adjustment
    9) Finder back adjustment
92. With its thicker part down, fasten 4230 with 4231 and 9125.
93. Position 1021, bond 1015 to it, and fasten 1038 and 1039 with 9121.

88. シャッター，ミラーボックスをそれぞれチャージした状態にてミラーボックスをボデーにセットし，9129で止め，5217を掛ける。Fig. 94。セルフギヤーのカムがシャッター軸に乗り上げないように注意する。シンクロ導通チェック，ＳＷ３リード線ハンダ付け（立体配線図参照)。
89. 0528を9612-1750-02で止め，ハンダ付けする（立体配線図参照)。
90. 0101を9613-1725-02で止め，1019を貼る。
91. 点検・調整（調整編参照）
    1）補助始動レバー調整
    2）ＳＷ４，マグネットＯＦＦタイミング調整，ＳＷ４チャタリングチェック
    3）シャッター速度調整
    4）ＡＵＴＯシャッター速度調整
    5）シンクロタイムラグ，接触効率調整
    6）多重露光調整
    7）ペンタロックストローク調整
    8）ボデーバック調整
    9）ファインダーバック調整
92. 4230の部厚い方を下側にして，4231，9125で止める。
93. 1021をはめ，1015を貼り，1038，1039を9121で止める。

Fig. 93

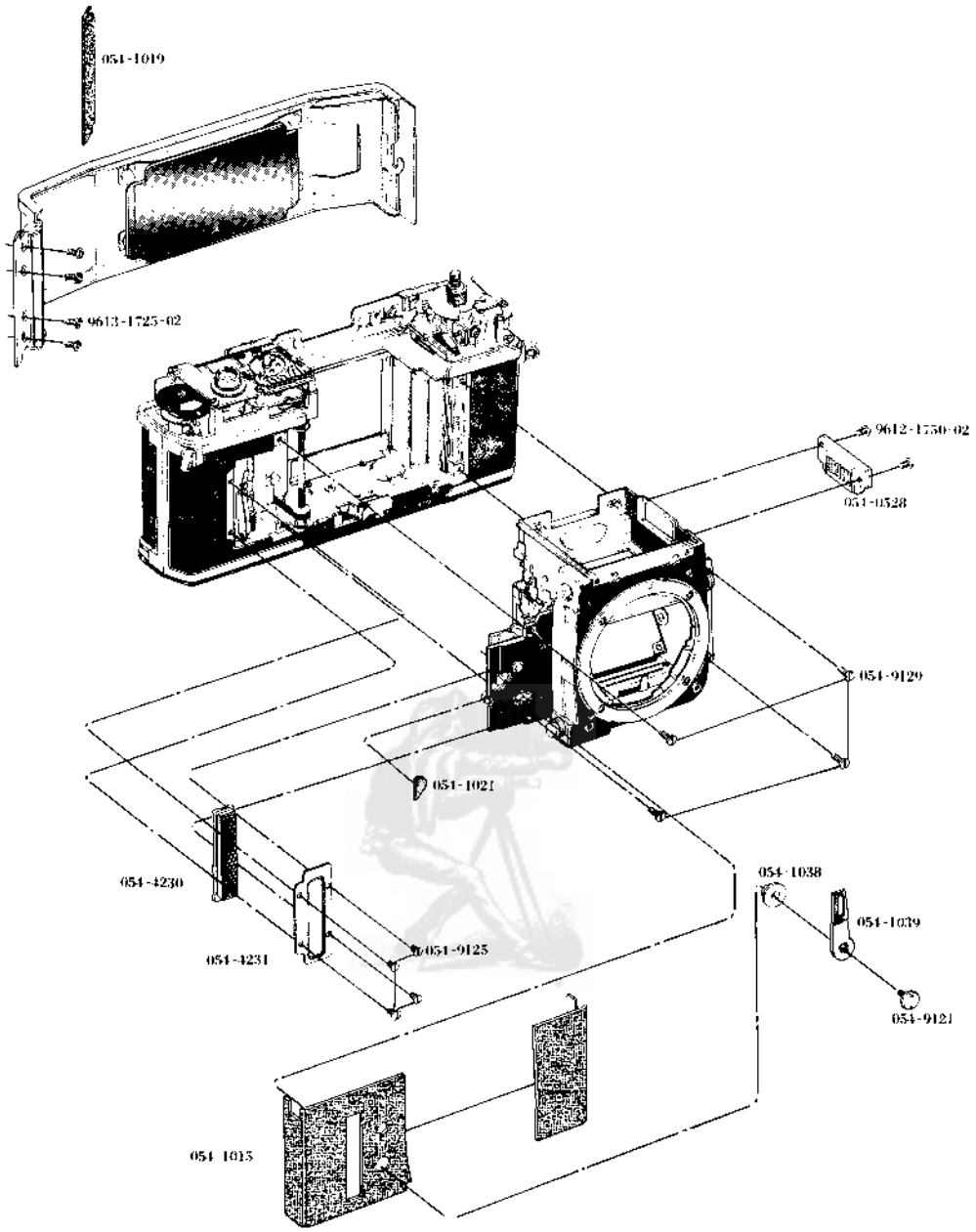
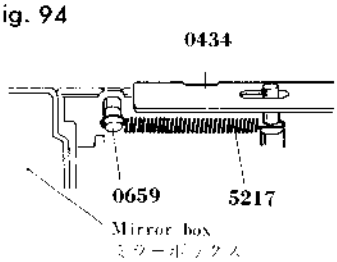

054-1019
9613-1725-02
9612-1750-02
054-0528
054-9129
054-1021
054-4230
054-4231
054-9125
054-1038
054-1039
054-9121
054-1015

Fig. 94


0434
0659
5217
Mirror box
ミラーボックス

94. Position 0103, and fasten it with 9613-1720-12 and 3014 (left hand screw).
95. After mounting 3029 and 3012 on 3019, fit in them, place 0311, 3009 and 3047 on them and fasten them all with 3013.
96. Speed dial block reassembly (See Page. 41).
97. Insert 4228 into the spring hole (Fig. 97) at an optional shutter dial position, and position the curved groove of 2009 as shown in Fig. 97.
98. Insert 4229 into the hole of 0607 (Fig. 96), set the speed dial block so that the square shaft of 0631 (Fig. 96) and the groove of 0607 (Fig. 96) coincide with the curved groove of 2009 and the pin of 0605 respectively, fasten it with 9612-2030-01 and bond 2004 to it.
99. Mount 0104 with 4328 positioned as shown in Fig. 98 and fasten the former with 9613-1720-12.
100. Set 0316, mount 9432, 3315 and 3309, and fasten them with 3314.
101. Bond 3311 to the above assembly and mount the Rewinding knob block and the Penta lock button block.
102. Fasten 1006 with 9611-2020-12.
103. Fix 9792-4060-87 into the R button, and fasten 0105 with 9613-1730-12.

94. 0103をはめ込み，9613-1720-12，3014（左ねじ）で止める。
95. 3029，3012を3019にセットしてはめ，0311，3009，3047を置き3013で止める。
96. スピードダイヤルブロック組立（See page. 41）
97. 任意のシャッターダイヤル位置にてスプリング穴（Fig. 97）に4228を入れ，2009の折り曲げ溝をFig. 97の位置にする。
98. 4229を0607の穴（Fig. 96）に入れ，0631の角軸（Fig. 96）及び0607の溝（Fig. 96）がそれぞれ2009の折り曲げ溝，及び0605のピンに入るようにスピードダイヤルブロックをセットし，9612-2030-01で止め，2004を貼り付ける。
99. 4328をFig. 98の方向にして，0104をはめ込み，9613-1720-12で止める。
100. 0316をセットし，9432，3315，3309をはめ，3314で止める。
101. 3311を貼り，捲戻しノブブロック，ペンタロック釦ブロックを取付ける。
102. 1006を9611-2020-12で止める。
103. 9792-4060-87をR釦にはめ，0105を9613-1730-12で止める。

Fig. 95

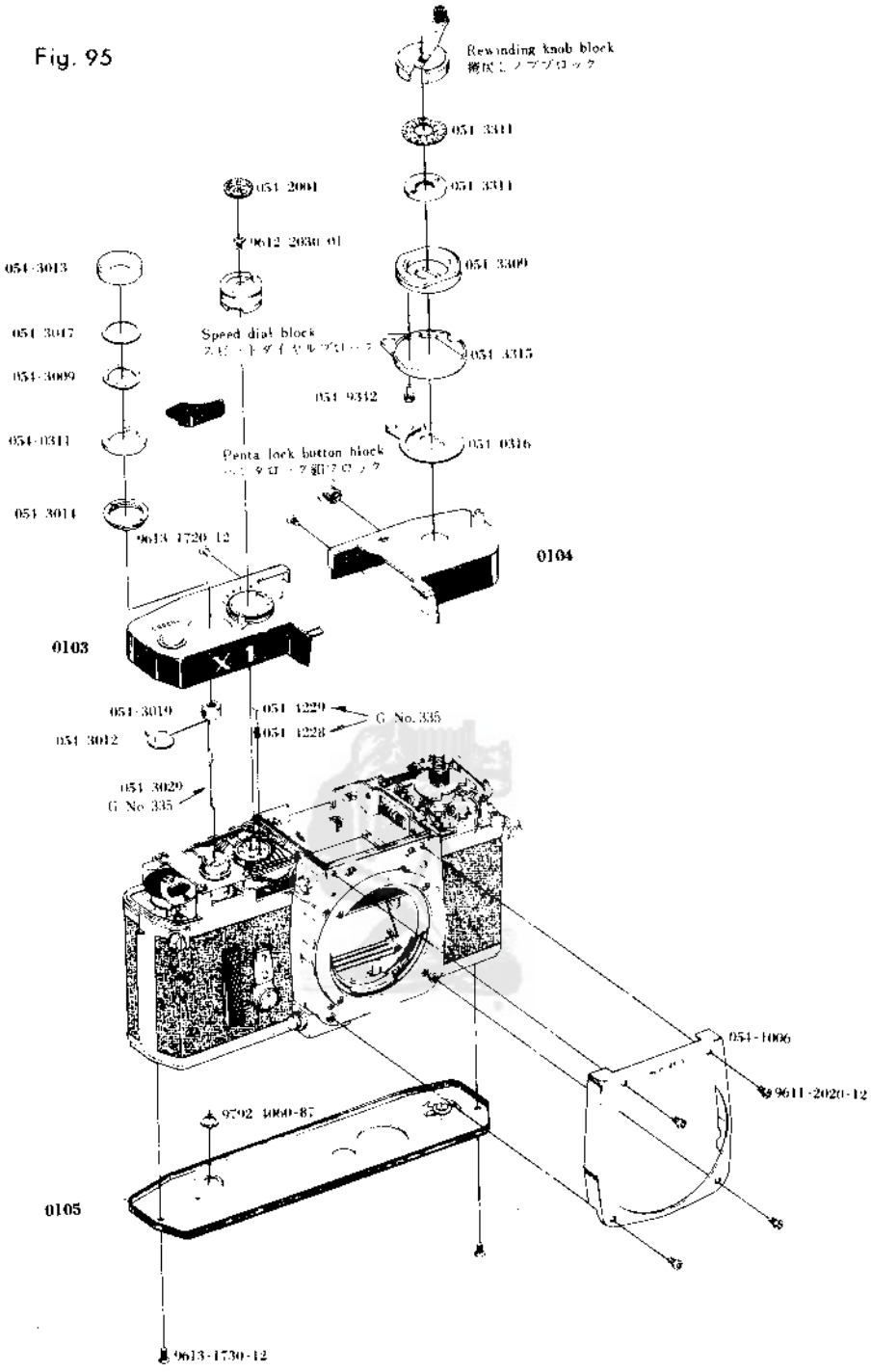


Fig. 96

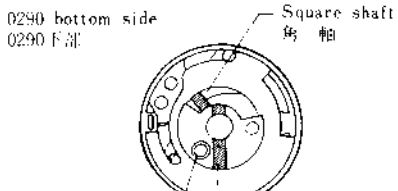


Fig. 97

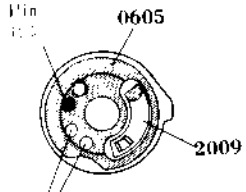
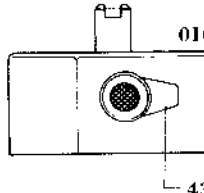


Fig. 98



104. Speed dial block reassembly

1) Mount 0607, 0631 and 0629 as shown in Fig. 100. Be sure that the pin of 0629 fits into the hole of 0631.
2) Mount 4226 so that the pin of 0607 fits into the groove as shown in Fig. 101. Give attention to the top and bottom of 4226 (the part with stage faces down).
3) Set 0628 so that the bent part and groove coincide with the groove of 0631 and the pin of 0607, and hook 4222 as shown in Fig. 102.
4) Fasten 4227, place 0210 on it, and fix them with 2003.

104. スピードダイヤルブロック組立

1) 0607, 0631, 0629をFig.100のようにセットする。0629のピンが0631の穴に入るようにすること。
2) 0607のピンが溝に入るように4226をはめる。Fig.101参照。
4226の上下に注意のこと（段のある方が下向き）。
3) 0628の折り曲げ部及び溝がそれぞれ0631の溝，0607のピンに入るようにセットし，4222を掛ける。Fig.102参照。
4) 4227を止め，0210をはめ2003で止める。

Fig. 99

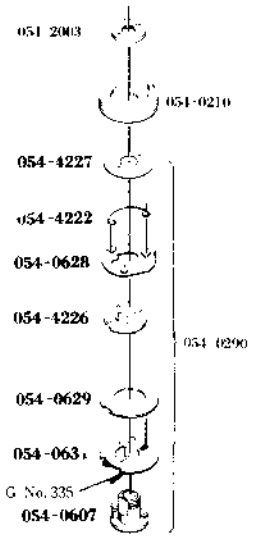


Fig. 100

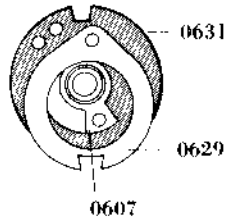


Fig. 101

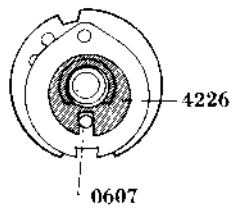
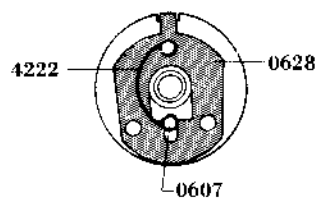


Fig. 102



Installation of SW. 8
SW. 8 新設について

SW. 8 is designed to improve the exposure performance further on the occasion of automatic photography. (Month of the scheduled installation : April, 1974)

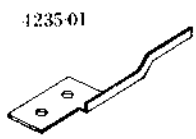
SW. 8 はオート撮影の際の露出性能を更に向上させる目的で新設されたものです。
(変更実施時期……1974年4月)

1. Changed Parts
変更部品

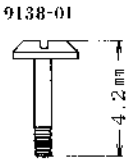
1) FP Middle contact B set
FP 中間接片Bセット

2) Release stop base plate set
二重押し防止台板セット

3) SW. 8 Contact B……New addition
SW. 8 接片 B ……新設



4) SW. 8 Set screw……New addition
SW. 8 セットビス……新設



5) Lead wires

リード線

New Part No. 新部品番号	Old Part No. 旧部品番号	Part Name 部品名称	変更内容
054-2256-02	054-2256-01	Sync. cord F (シンクロコードF)	Length (長さ) 75→100mm
	054-2258-01	Sync. cord A (シンクロコードA)	Discontinue (廃止)
054-4395-01		Lead wire U (リード線U)	New addition (新設)
054-4396-01		Lead wire V (リード線V)	

NOTE: 4395-01……Lead wire U (Black ℓ = 90mm) リード線 U (黒 90mm)
注 4396-01……Lead wire V (Black ℓ = 140mm) リード線 V (黒 140mm)

2. Services

サービス対策

If a camera brought for repair is claimed to present "irregular exposure" or "overexposure" on the occasion of auto-exposure, install SW. 8 according to the procedures of 3 and thereafter.

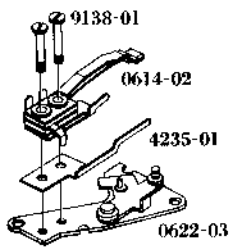
修理時のクレーム内容がオート露出での "露出のバラツキ"、"露出オーバー" のカメラに対しては後記3以下の手順に従って SW. 8 を取付けて下さい。

3. How to Install SW. 8

SW. 8 組込要領

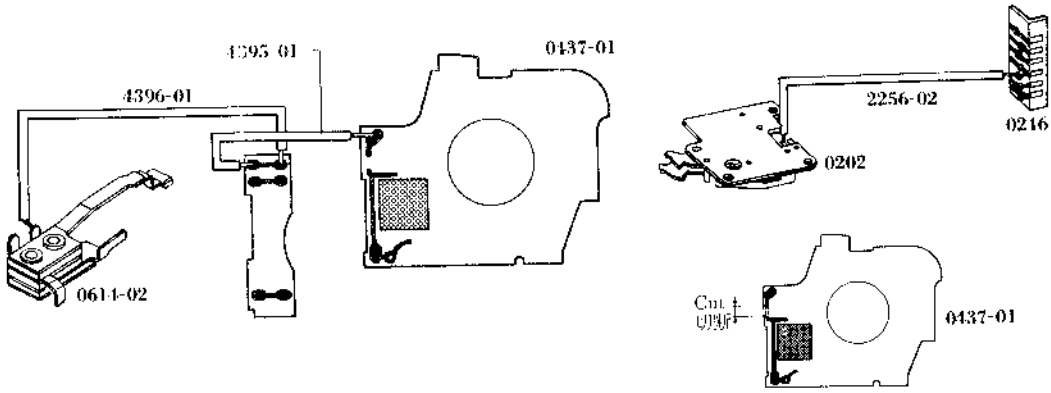
1) Replace the old part (#9136-01, #0614-01 and 0622-02) with the new parts (#0622-03, #0614-02 and #9138-01), respectively.

旧部品 #9136-01、#0614-01、#0622-02 を外し新部品 #0622-03、#0614-02、#9138-01 を取付ける。



2) Remove the unnecessary old lead wires (#2256 01 and #2258-01), and solder the new ones according to the following new wiring diagram. In this case, cut the part of the circuit base plate shown in the following diagram with a file or something else. (If the part is cut off, the circuit won't work.)

不要の旧リード線 (#2256-01、#2258-01) を外し、下に示す新配線図に従って新リード線をハンダ付けして下さい。この時は回路基板の下図に示した部分をヤスリ等で切断して下さい。

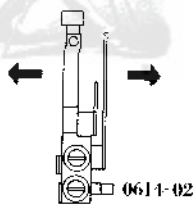


3) Adjustment of the Timing of SW. 8

SW. 8 調整要領

Loosen #9138 and move the position of #4325 so that #4325 may contact #4324 with a flection of about 0.1mm when the wind-up operation is completed.

巻上完了と同時に #4325 が #4324 を 0.1 mm 程度たわませて接触するように #9138 をゆるめて #4235 の位置を移動させて調整する。



Caution :

注　意：

- If SW. 8 is turned on before the wind-up operation is completed, the pointer of the meter won't show a correct figure. With the completion of the wind-up operation, the pointer becomes unstable, but will soon show a right figure.
- When adjusting the contact pressure of SW. 8, adjust the FP middle contact simultaneously so that it may come to a correct position.
- If the contact pressure of SW. 8 insufficient, bend the root of #4235 with a pincette.

- 巻上完了前に SW. 8 が ON になるとメーターの指示が正しい値を示さなくなり、その後巻上が完了すると一旦指針が不安定になってから正常な指示に戻る。
- SW. 8 の接触圧を調整する時 FP 中間接片も同時に正しい位置にくるように調整する。
- SW. 8 の接触圧が足りない時は #4235 の根元をピンセットで曲げる。

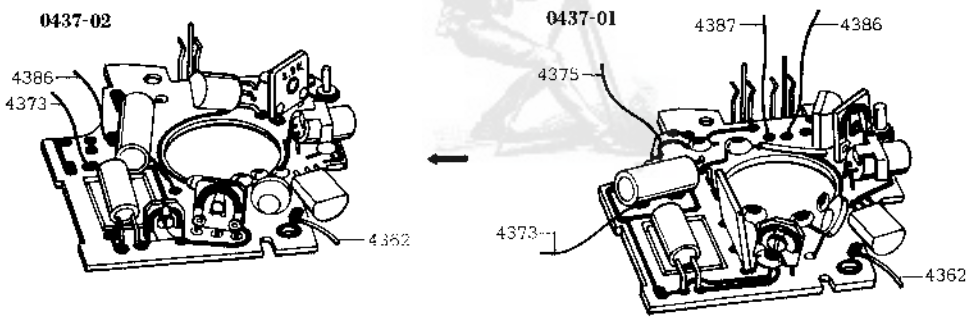
Change in AM Switch
AM スイッチ変更について

With a view to improving the electric performances of 054, 058 and 062, the construction of the AM changing switch (called M switch 3, #0635) has been changed from the previous two sets of legs (6 legs) to one set (3 legs). In this relation, the circuit base plate (#0437), the resistor base plate (#4326) and the lead wires have also been changed. (Month of the scheduled changes: November 1974) Along with these changes, a new three-dimensional wiring diagram for the switching circuit has been worked out for your information.

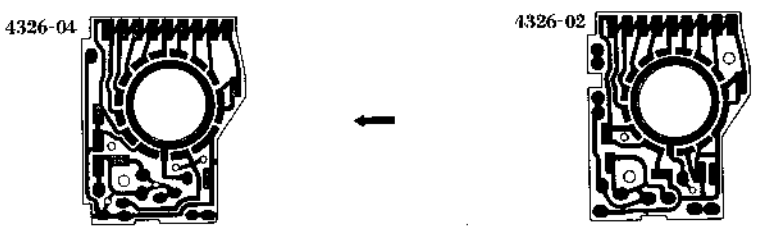
054、058、062 の電気性能を更に向上させる為に AM 切換スイッチ（部品名称Mスイッチ3……#0635）の構成が従来の２組（６本足）より１組（３本足）に変更され、それに関連して回路基板（#0437）、抵抗基板（#4326）及びリード線も変更されました（変更実施時期…1974年11月）。今回の変更に伴ってスイッチング回路立体配線図も新しく作成しましたのでそれもあわせてご参照下さい。

1. Changing Parts
変 更 部 品

1) Circuit base plate
回 路 基 板

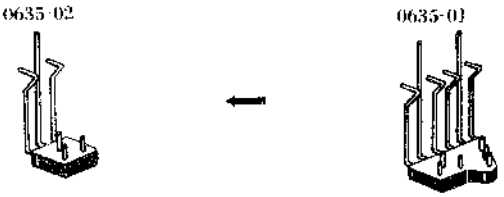


2) Resistor base plate
抵 抗 基 板



3) AM. Switch (Old name……M. Switch 3)

AM スイッチ(旧名称……M. スイッチ)



4) Lead wires

リード線

New Part No. 新部品番号	Old Part No. 旧部品番号	Part Name 部品名称			Change of length 長さ変更		
054-4371-02	054-4371-01	Lead Wire J (Brown)	リード線 J(茶)		25mm	←	35
054-4372-03	054-4372-02	〃 K(〃)	〃	K(〃)	15mm	←	22
054-4375-02	054-4375-01	〃 N(Orange)	〃	N(橙)	150mm	←	115
054-4376-02	054-4376-01	〃 O(〃)	〃	O(〃)	15mm	←	30
054-4386-02	054-4386-01	〃 S(Green)	〃	S(緑)	20mm	←	40
	054-4387-01	〃 T(Blue)	〃	T(青)	Discontinue	廃止	

Note :

注 :

1. The lead wire N (#4735) was a coupling part for #0437-01, but is now a single part. The 3 lead wires, #4362, #4386 and #4373, are considered coupling parts for the new circuit base plate (#0437-02), but they can be individually provided. With the exception of these lead wires, other parts of #0437-02 for individual supply are the same as those of #0437-01. Please refer to the parts list.

   リード線N (#4375) は #0437-01 の結合部品でしたが今回の変更時より単体部品に変りました。新回路基板 (#0437-02) には #4362、#4386、#4373 の3本のリード線が結合部品として含まれていますが単体供給は可能です。リード線以外の単体供給可能部品は #0437-01 と変りませんのでパーツリストを参照して下さい。

2. **Interchangeability between the New and the Old Parts**

   新・旧部品の互換性について

   1) Don't mingle the 3 old parts, the circuit base plate (#0437), the resistor base plate (#4326) and the AM switch (#0635), with the new ones for use.

      回路基板 (#0437)、抵抗基板 (#4326)、AMスイッチ (#0635) の3部品については新・旧の混用はできません。

   2) If these 3 old parts are mingled with the new ones, the circuit won't work.

      上記3部品を新旧混用しますと回路が働きません。

   3) Be sure to use the old parts for the body having the old circuit and the new parts for the body having the new circuit.

      必ず旧回路のボデーには旧部品、新回路のボデーには新部品を使用して下さい。

4) When the stock of old parts is cleared, only new parts will be provided. If, therefore, even one of the 3 old parts needs to be replaced, the 3 must be replaced with the 3 new ones all together.

旧部品の在庫が終了しますと部品供給はすべて新部品のみとなります。従って旧部品3点のうち1点でも取替えの必要が生じた時は3点ペアーで新部品に取替えて下さい。

3. Procedures and Cautions upon the Installation of the New Parts in the body Having the Old Circuits.

旧回路ボデーに新部品を取付ける際の手順及び注意

A. For the SW. 8 Built-in body Having the Old Circuit

SW. 8 が組込まれている旧回路ボデーの場合。

1) Replace the 3 old parts (#0437, #0635 and #4326) with the 3 new ones, and set the wiring according to the new three-dimensional wiring diagram.

#0437、#0635、#4326 を外してそれぞれの新部品を取付け、新立体配線図に従って配線を行って下さい。

2) The lead wires must also be changed. Remove the one old lead wire, #4387 01 (Lead Wire T blue), because it is unnecessary for the new circuit.

リード線もこの変更に関連して変更されております。旧リード線のうちで #4387-01 (リード線T……青) は新回路では不要になりますので取外して下さい。

3) Replace another lead wire, #4375-01, (Lead wire N-orange), with the new lead wire, #4375-02, because it is too short for the new circuit.

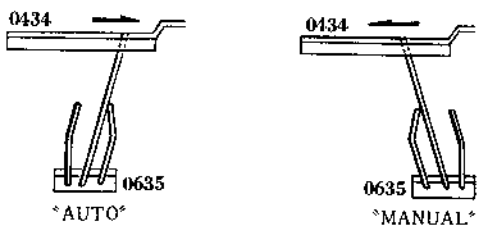
又、旧リード線 #4375-01 (リード線 N…… 橙) は新回路では長さが足りなくなりますので新リード線 #4375-02 を取付けて下さい。

4) Use the other old lead wires, #4371-01, #4372-02, #4376-01 and #4386-02, by cutting parts of them according to the needs.

他の旧リード線 #4371-01、#4372-02、#4376-01、#4386-02 についても長さが変更されておりますがこれらに関しては配線作業時に適当に切断してそのまま使用して下さい。

5) After replacing the unnecessary old ones, check whether the AM switch functions well. Please see P 13 of the adjustment section in the Service Manual for the detailed check-ups and adjustments of the AM switch.

取替えが完了しますと AM スイッチが正しく作動しているか確認して下さい。
尚、AM スイッチの詳しい点検、調整要領はサービスマニュアル調整編 13 ページに記載されております。



B. For the body Having the Old Circuit with No SW. 8 Built in

SW. 8 が組込まれていない旧回路ボデーの場合

a. If SW. 8 must be installed together with the new parts:

SW. 8 も新部品と共に取付けねばならない場合

1) Attach SW. 8 to the camera only when you judge from "2. Services" in the other paper entitled "Installation of SW. 8" that the camera needs SW. 8.

今回同時に配布しました別紙 "SW. 8 新設について" のサービス対策の項を参照の上でSW. 8 の取付けが必要と判断されたカメラのみに取付けて下さい 取付け要領は" SW. 8 新設について" に記載されています。

2) After building in SW. 8, set the new parts and wires according to the procedures of 3-A.

SW. 8 組込完了後は前項 3-A の手順に従って新部品を取付け配線を行って下さい。

b. If SW. 8 is not required.

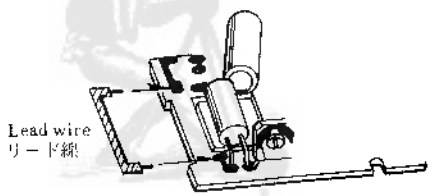
SW. 8 の取付けが必要でない場合

1) Set the new parts and wires according to the procedures of 3 A. Since SW. 8 is not required in this case, the lead wires, U(#4395) and V(#4396), are unnecessary.

前項3-Aの手順に従って新部品を取付けて配線を行って下さい。但し、この場合はSW. 8 がありませんのでリード線U (#4395) とリード線V (#4396) は不要です。

2) After completing the installation work, be sure to connect the below-illustrated patterns of the new circuit base plate (#0437-02) with an adquate lead wire. If not, the circuit won't work.

取付け作業完了後必ず新回路基板 (#0437-02) の下図のパターン間を適当なリード線で連絡しておくこと。連絡されていないと回路が働きません。



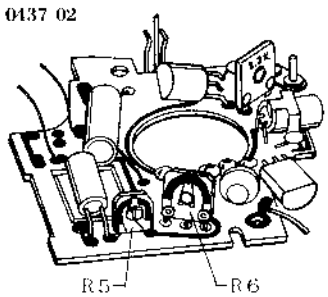
4. P. S.

追 記

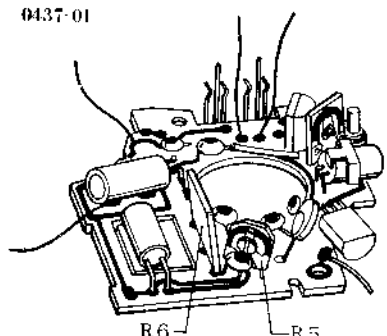
There is a great difference between the old and new circuit base plates with regard to the position of installing each electric element. Be cautious toward the adjustment of the shutter speed, because R5 (variable resistor) for adjustments on the low shutter speed side and R6 (variable resistor) for adjustment on the high shutter speed side on the new circuit base plate are placed diametrically opposite to those on the old circuit base plate.

新回路基板では旧回路基板と比べて各電気素子の取付け位置がかなり変っております。シャッター低速側調整用のR 5 (半固定抵抗) と高速側のR 6 (半固定抵抗) の位置が新旧では逆になっていますのでシャッター速度調整時はご注意願います。

0437-02

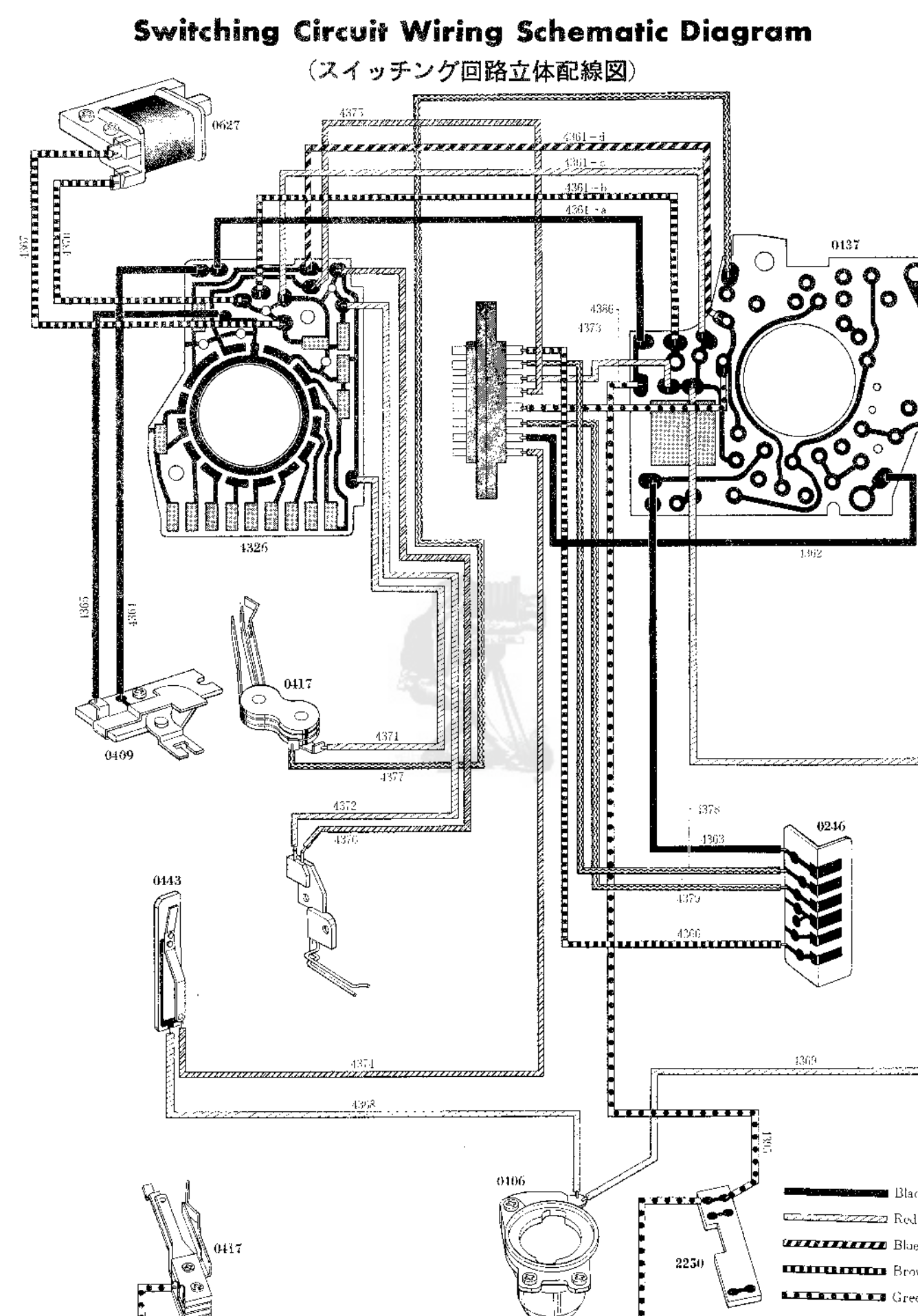


0437-01



Switching Circuit Wiring Schematic Diagram

（スイッチング回路立体配線図）



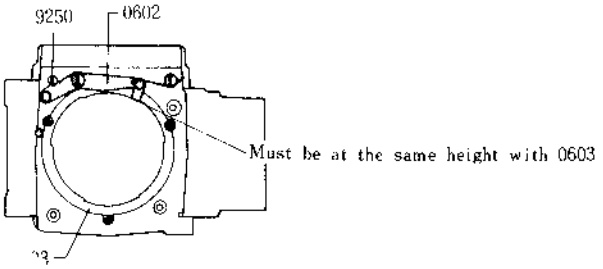
HOW TO ADJUST (054)

1. Lock lever adjustment ····· 1
2. Penta lock slide plate-B adjustment ····· 1
3. MP stopper adjustment ····· 1
4. Mirror's 45 angle adjustment ····· 1
5. Gap of the mirror operation lever adjustment ····· 2
6. Pre-Set operation adjustment ····· 3
7. MP lock lever adjustment ····· 3
8. Mirror lock adjustment ····· 3
9. PV terminal adjustment ····· 4
10. SW3 adjustment ····· 4
11. Release position, SW2 and SW5 adjustment ····· 5 · 6
12. Spool gear engagement adjustment ····· 7
13. Clutch lever adjustment ····· 7
14. Over-charge lever-A adjustment ····· 7
15. SW6 adjustment ····· 8
16. Curtain shaft shake adjustment ····· 8
17. Shutter Button release cam adjustment ····· 8
18. Brake adjustment ····· 9
19. Curtain speed and kick cam adjustment ····· 10
20. SW4 and magnet-off timing adjustment and SW4 chattering check ····· 11 · 12
21. Winding release lever adjustment ····· 13
22. AM changing switch adjustment ····· 13
23. Shutter start lever adjustment ····· 14
24. Shutter speed adjustment ····· 15
25. Auto shutter speed adjustment ····· 16
26. Synchro time lag and contact efficiency adjustment ····· 17
27. Double exposure adjustment ····· 18
28. Penta lock stroke adjustment ····· 18
29. Body-back adjustment ····· 19
30. Finder-back adjustment ····· 20 · 21

1. Lock Lever Adjustment

1) By turning the eccentric pin (9250), adjust 0602 so that its tip is positioned at the same height as the bore of 0603. See Fig. 1.

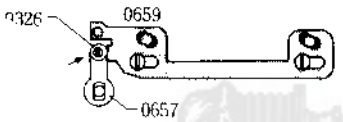
Fig. 1



2. Penta Lock Slide Plate-B Adjustment

1) By turning the eccentric pin (9326), adjust 0659 so that it is set tightly in place when 0657 remains depressed. See Fig. 2.

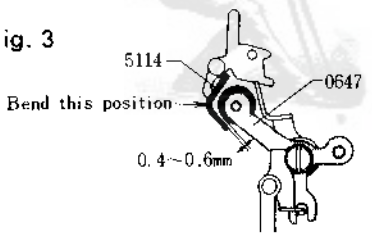
Fig. 2



3. MP Stopper Adjustment

1) Adjust 5114 by bending it so that the opening between 5114 and 0647 is 0.4 to 0.6 mm when the mirror is loaded (the mirror is lowered). See Fig. 3.

Fig. 3



4. Mirror's 45° Angle Adjustment

Measuring instrument: Mirror angle adjuster (Model MA-Ⅱ)
How to use : See the operation manual of "Mirror angle adjuster".

1) Mount the mirror box and front frame plate assembly on the adjuster.
2) When the mirror is lowered, visually check the height of the mirror with a mirror height measuring gauge (Fig. 4). The tip of the mirror should be at the height of the tip of the gauge. If they do not coincide, loosen 9116 a little and move the mirror stopper plate horizontally by using the tip of a screw-driver until the tips are at the same height. See Fig. 5.

Fig. 4

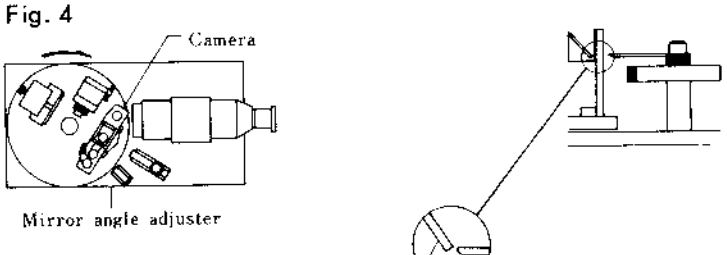
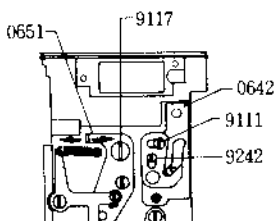


Fig. 5



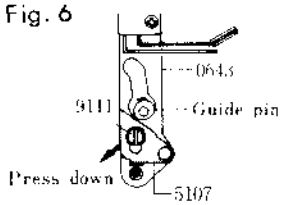
3) By turning the rotary stand of the mirror angle adjuster, position the mirror box in front of the auto-collimator.

4) Look into the auto-collimator and check the position of the reticle on the focusing index plate and the chart image. If the angle is aberrant more than the focusing index plate and the chart image. If the angle is aberrant more than 10′, perform the following adjustments:

5) Unfasten 9117 and move 0651 horizontally so that the center of the chart image comes on the vertical line of the reticle. See Fig. 5 . On moving 0651 horizontally the chart image moves diagonally toward the right.

6) Unfasten 9111 (on the 0643 side as shown in Fig. 6), and position the mirror adjusting plate-B (5107) farthest away from the guide pin of the mirror holder (press 5107 down in the direction of the arrow shown in Fig. 6).

Fig. 6



7) Loosen 9111 (on the 0642 side as shown in Fig. 5), turn the eccentric pin (9247) so that the center of the chart image comes to 2′ to 3′ in the center of the reticle, and fasten 9111.

8) Gradually lift the mirror adjusting plate-B (5107 as shown in Fig. 6) with the tip of a screw driver until the center of the chart image coincides with that of the reticle, and fasten 9111.

9) By moving the mirror vertically several times with your finger from the rear of mirror box, check that the chart image does not move or remains within the permissible range (10′).

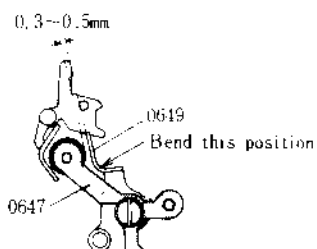
10) Check the height of the mirror according to paragraph 2) above. If it is not at the correct height, readjust it according to paragraphs 2) through 8) above.

Note: The 45° angle adjustment cannot always be reached when made in the procedures 2) through 8) above. Therefore, the adjustment must be carried out through a proper combination of the procedures 2) through 8).

5. Gap Of The Mirror Operation Lever Adjustment

1) After adjusting the angle of the mirror, bend 0649 so that the clearance between 0649 and 0647 is 0.3 to 0.5mm (Fig. 7) when the mirror is lowered.

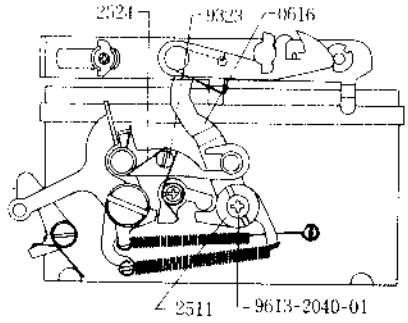
Fig. 7



6. Pre-Set Operation Adjustment

1) Position the eccentric pin (9323) farthest away from 2524 (where 2524 is least effective), charge the pre-set and then release it to check that the pre-set lever A (0616) operates properly. If 0616 does not operate, turn 9323 slightly to left (make 2524 more effective) so that 0616 can operate properly. See Fig. 8.

Fig. 8



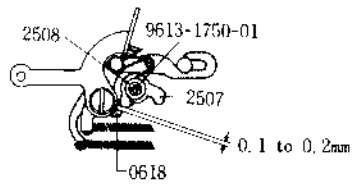
2) When 0616 does not operate correctly or does not operate at all, regardless of the effectiveness of 2524, loosen 9613-2040-01 to turn 2511 (which is eccentric) horizontally and stop 2511 at the position where 0616 operates smoothly. Then fasten 9613-2040-01. See Fig. 8.

3) Mount the standard lens and check that the lens is opened up completely when 0616 is reset and that it is stopped down completely up to the smallest aperture when the shutter is released or stopped down.

7. MP Lock Lever Adjustment

1) Unfasten 9613-1750-01 and turn 2508 (which is eccentric) to adjust 2507 so that it can be smoothly set in place without being stopped by the claw of 0618 when the pre-set is stopped down while the mirror is lowered (the mirror is charged) and that the clearance between 2507 and 0618 is 0.1 to 0.2mm. See Fig. 9.

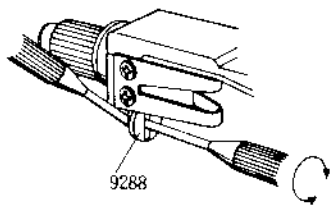
Fig. 9



8. Mirror Lock Adjustment

1) By turning the eccentric pin (9288), adjust the mirror lock so that it works at 0.5 to 1mm below the position whre the mirror is completely lifted. See Fig. 10.
Caution: Be sure to turn 9288 while the mirror is lowered and apply the screwdriver to the rear of 9288 so that 0650 is prevented from bending.

Fig. 10



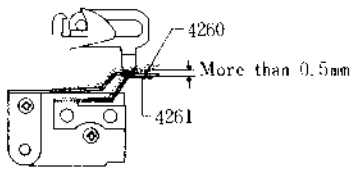
9. PV Terminal Adjustment

1) By operating the pre-view button, be sure that 4260 and 4261 are in contact wi each other when the lens is opened up (when the pre-view button is pressed) a that 4261 is bent at more than 0.5mm.

2) Be sure that 4260 and 4261 are out of contact when the lens is stopped down.

3) Adjust 4260 and 4261 by bending them properly so that the conditions described paragraphs 1) and 2) above are satisfactory. See Fig. 11.

Fig. 11



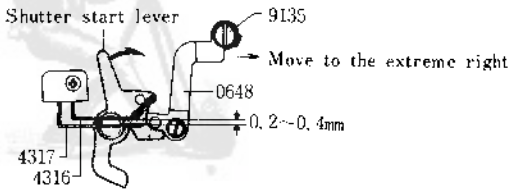
10. SW3 Adjustment

1) Unfasten 9135 to position 0648 at the extreme right, and keep the mirror lifted.

2) Move the shutter start lever in the direction of the arrow shown in Fig. 12, ar adjust the contacts between 4316 and 4317 by bending 4316 so that the clearance between the contacts becomes 0.2 to 0.4mm.

3) Be sure to check that 4316 and 4317 are in perfect contact when the mirror is charged.

Fig. 12



11. Release Position, SW 2 and SW 5 Timing Adjustment

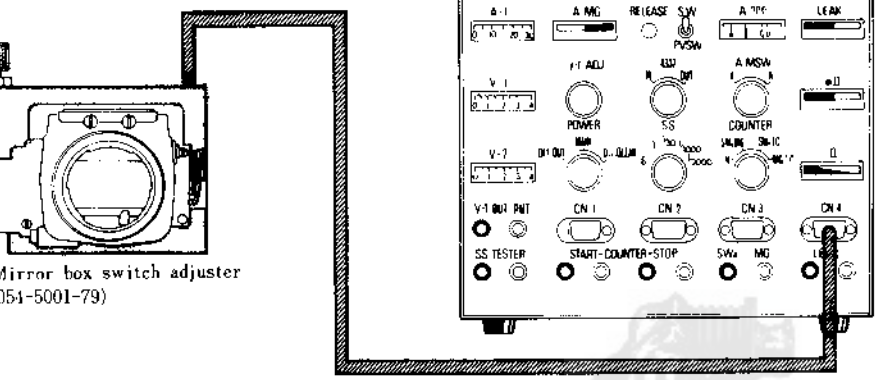
Measuring instrument and adjusting tool: Multiple tester (Model MT-Ⅰ)
Mirror box switch adjuster (054-5001-79)

How to use : See the operation manual of "Multiple tester".

1) Mount the mirror box (on which the front frame is mounted but with the self-gear removed) on the mirror box switch adjuster, fasten it with the two 9129 (Front frame set screw) and connect the assembly to the multiple tester as shown in Fig.13.

Caution: When setting the mirror box, be sure that the release lever does not climb over the release spindle.

ig. 13

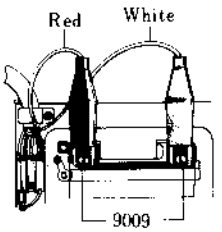


Mirror box switch adjuster
054-5001-79)

Multiple tester switches position

Switches position	
Switches	Position
V-1 ADJ	Free
POWER	Ω, mΩ, LEAK
4337	Free
SS	Free
A-MSW	Free
COUNTER	N

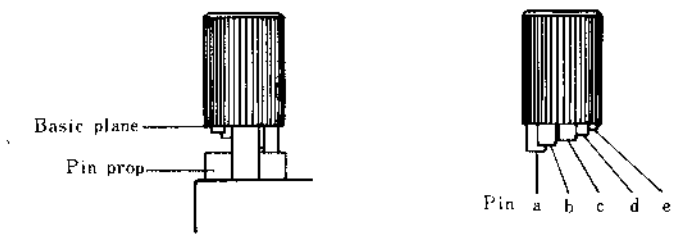
Fig. 13-1



Caution: The miroor box switch adjuster connecting clips are connect to the mirror box back side two piece of 9009 (Slide plate guide axis) as shown in Fig. 13-1.
Be sure 9009 are unscrewing.

2) Lift the release knob (hereinafter called the knob), apply the tip of the release position set pin-a (hereinafter called pins a through e) to the pin prop. See Fig. 14.

Fig. 14

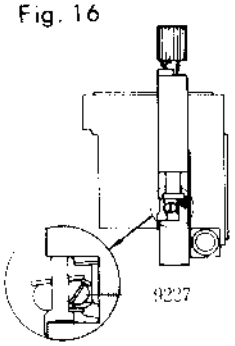


3) While the mirror box is charged, turn gradually the knob right to adjust it by moving the eccentric pin (9262) so that the shutter is not released (the mirror remains lowered) at the stage of pin-e (pin-e is in contact with the pin prop) but released at the stage when the basic plane comes in contact with the pin prop. See Fig. 15.

Fig. 15

4) After adjusting paragraph 3), gradually turn the knob from pin-a while the mirror box is charged to check that SW2 is not turned off (the pointer of the continuity meter is not returned to "O") when the knob reaches pin-b. If SW2 is turned off, adjust it by turning the eccentric pin (9227) slightly so that the switch is not turned off. See Fig.16.

Fig. 16



5) Turn the eccentric pin (9227) as in paragraph 4) above to adjust SW2 so that it is turned off (the pointer of the continuity meter is returned to "O") when the knob is charged from pin-b to pin-c.

6) After adjusting the timing of SW2, adjust SW5 by turning the eccentric pin (9289) so that it is turned on when the knob is changed from pin-c to pin-d. See Fig.17. To check that SW5 is turned on, see that the pointer of the contact resistance meter is returned to 59.5mΩ. If the timing of SW5 cannot be adjusted by using the eccentric pin (9289), bend the curved part of the changing lever (4320) slightly to change the timing of SW2 and carry out readjustments from paragraph 4) above.

Note: Be sure that the contact resistance of SW5 is less than 60mΩ. If it is more than 60mΩ, clean the contacts and bend the grounding contact (4304) of SW5 so that the contact pressure increases under 60mΩ. See Fig.18. Be sure to check the timing of SW5 after 4304 has been bent. If the contact resistance is more than 60.5mΩ even when SW5 is turned on, the pointer of the contact resistance meter remains pointing up. Therefore, attention must be paid to the contact resistance which should be under 60mΩ.

Fig. 17

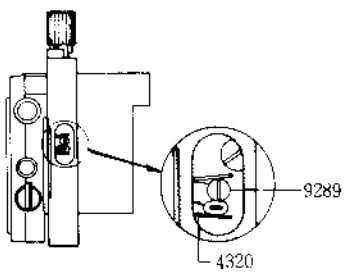
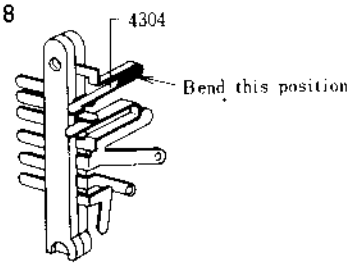


Fig. 18



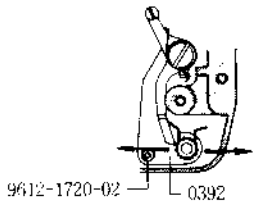
7) After completion of adjustments 3) through 6) above, repeat the charge-release operations 4 or 5 times to check that SW2 and SW5 operate according to the steps listed in the following table:

	Pin-a	Pin-b	Pin-c	Pin-d	Pin-e	Bsic plane
Mirror	Down	Down	Down	Down	Down	Up

12. Spool Gear Engagement Adjustment

1) Unfasten 9612-1720-02 and manually turn the spool to select the position where its gear rotates smoothly without any hitch by moving 0392 horizontally. Then fasten 9612-1720-02. See Fig. 19.

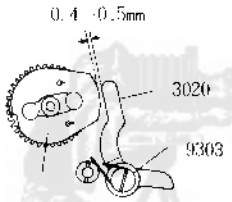
Fig. 19



13. Clutch Lever Adjustment

1) While the shutter button stroke is maintained at "0" (the shutter button is not pressed down), adjust by turning the eccentric shaft (9303) so that the clearance between the clutch lever (3020) and clutch plate (3030) ranges from 0.4 to 0.5mm. See Fig. 20.

Fig. 20



14. Over-Charge Lever-A Adjustment

1) As indicated in Fig. 21, temporarily mount 0291 and fasten it with 9612-1730-01 (winding base plate mount screw).

2) Depress 0410 with the tip of a screw-driver to keep 0410 and 0632 locked (Fig. 22) and adjust by turning the eccentric pin (9038) so that there is no clearance between 4025 and 4026 and that the clearance shown in Fig. 21-A is 0 to 0.1mm when it is free from external force.

Fig. 21

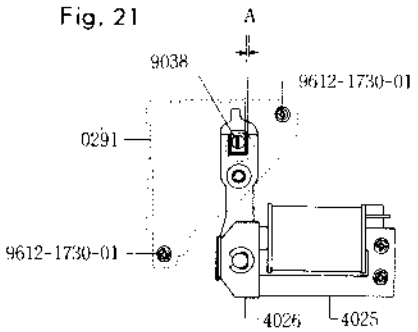
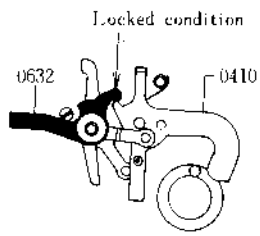


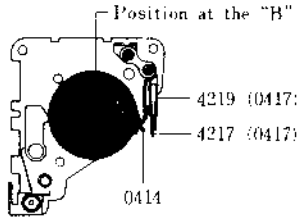
Fig. 22



15. SW6 Adjustment

1) Adjust SW6 by bending **0414**, **4217** and **4219** properly so that they come in contact when the shutter dial is positioned at "B" and that they are out of contact when the shutter dial is positioned at any other place but "B". See Fig. 23.

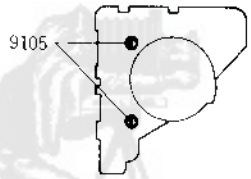
Fig. 23



16. Curtain Shaft Shake Adjustment

1) Fasten **9105** so that the curtain shafts (**0611** and **0610**) on the winding side have vertical play of **0.1** to **0.2mm**. (Be sure to give a half turn back to **9105** once it has been completely fastened). After adjusting, be sure to screw-lock the curtain shafts. See Fig. 24.

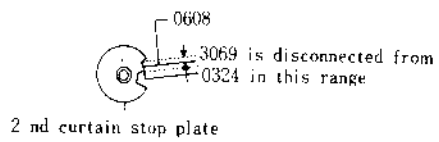
Fig. 24

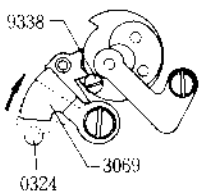


17. Shutter Button Release Cam Adjustment

1) Adjust by turning the eccentric pin (**9338**) so that **3069** is removed from **0324** (as shown in Fig. 25) during the period from the 2nd curtain stop lever (**0608**) comes on the 2nd curtain stop plate until the winding is completed.

Fig. 25





18. Brake Adjustment

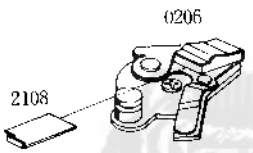
Measuring instrument: Shutter tester

Adjust the shutter curtain spring based on the curtain speed adjustment described in "HOW TO ADJUST" 19 below, and check and adjust the following:

1) With the shutter dial positioned at "B", release the shutter to check that the 1st curtain running is not completed at the 1st curtain speed of 0.8ms (the slit is stopped before the curtain position mark line of the body) and the 1st curtain running is completed at a speed of 8.4ms. In other words, be sure that the running time limits of the 1st curtain are between 8.4ms and 8.8ms.
2) When the 1st curtain running is incomplete (brake is put on too strongly) at 8.4ms, replace the 1st curtain adjustment seat (see the following table) with the one 0.05mm thinner than 2108. See Fig. 26.

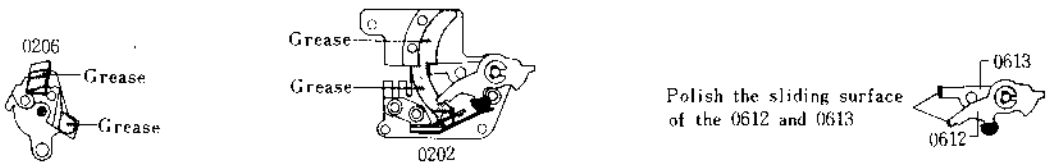
Type of Seat	2108-11	-12	-13	-14
Thickness (mm)	0.05	0.1	0.15	0.2

Fig. 26



3) If the 1st curtain running is completed at 8.8ms, replace the 1st curtain adjustment seat with the one 0.05mm thicker than 2108.
4) If the conditions described in paragraph 1) above are not satisfactory when even 2108 have been replaced as in paragraphs 2) and 3), further replace 2108 properly.
5) When the brake is put on too strongly, replace or remove the washers used. If the 1st curtain running is still incomplete, be sure to check if grease has been applied to 0206 and 0202 (the brake works too much with insufficient grease) and that the sliding surface of 0612 is smooth. If the sliding surface is uneven, grind it smooth. See Fig. 27.

Fig. 27



6) By adjusting the 2nd curtain running time to 9.0ms, check that the running is completed. If the running is still incomplete, the next winding is stopped. In this case, check for the collision of the shutter curtain slits themselves. If the slits are bent, correct them.
If, as in paragraph 5) above, the 2nd curtain brake also works too strongly, be sure to check for grease on 0206, 0202 and 0613 (Fig. 27) as well as the sliding surface smoothness.

19. Curtain Speed and Kick Cam Adjustment

Measuring instrument: Shutter tester

When the shutter speed is set at "B", adjust the time needed for the shutter curtains to run for 32mm out of 36mm wide aperture frame respectively to 8 ± 0.1ms for the 1st curtain and 8.5 ± 0.1ms for the 2nd curtain.

1) With the shutter dial positioned at "B", release the shutter (prior to the mirror box assembly, depress the shutter button and FP contact lever (Fig.28) to run the curtain), unfasten 9621-1420-01 and turn 2072 to adjust the 1st curtain running time to 8 ± 0.1ms. See Fig.29. When turning 2072 clockwise, the curtain speed is faster and when turning it counterclockwise, the curtain speed is slower.

Fig. 28

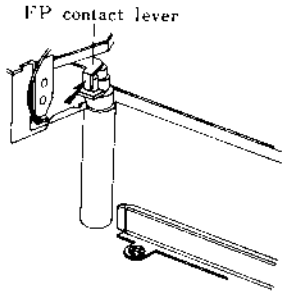
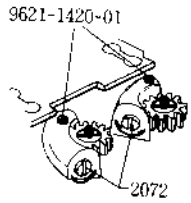


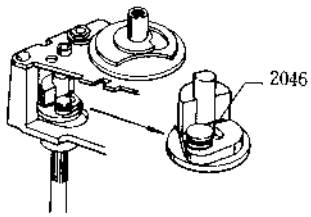
Fig. 29



2) Similar to the procedure in paragraph 1) above, adjust the 2nd curtain running time to 8.5 ± 0.1ms when the dial is set at "B".

3) With the shutter dial positioned at "X", release the shutter to check that the exposure time ranges from 10.3ms to 13.2ms when no battery is used. When "X" is opened up (to the condition of "B") or more than 15ms, the kick cam spring (2046) shown in Fig. 30 is strong in force. However, since the spring force of 2046 is weak when exposure time ranges from 2ms to 4ms, adjust exposure time by bending the spring to change its force so that it ranges from 10.3ms to 13.2m

Fig. 30



20. SW4, Magnet-OFF Timing Adjustment and SW4 Chattering Check

Measuring instruments and tool: Multiple tester (Model MT-Ⅰ)
Digital time counter (Model TC-Ⅰ)
Shutter tester (Model FS-1D MN4)
DC supply cord (054-4202-79)

How to use : See the operation manuals of "Multiple tester" and "Digital time counter".

1) Solder the two lead wires to the camera body as indicated in Fig. 31, and connect to the multiple tester, DC supply cord, shutter tester and digital time counter as illustrated in Fig. 32.
2) Connect the circuit base plate (0437) and camera body with connecting clips, connecting position as shown in Fig. 31-1.

Fig. 31

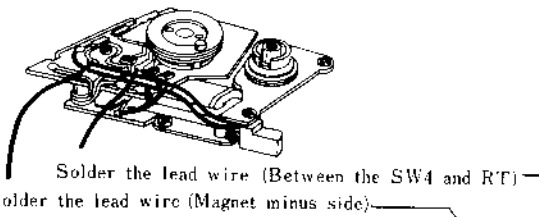


Fig. 31-1

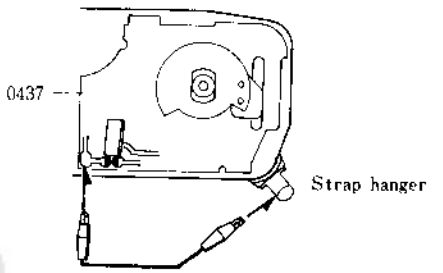
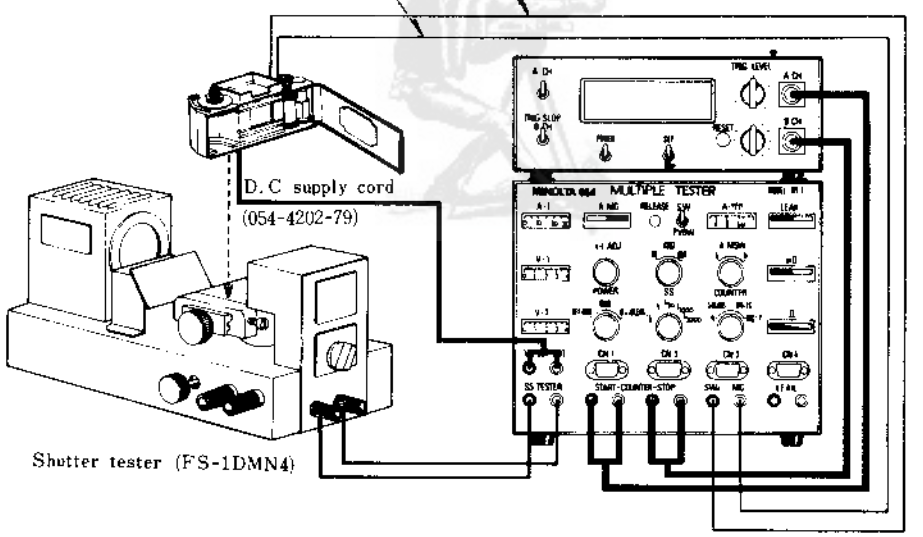


Fig. 32



Caution:
1. The connecting cords check up plus side (Red) and minus side (Black) following the Multiple tester, Digital time counter, Shutter tester and DC supply cord.
2. Keep right and left position when the camera located on the Shutter tester (see green signal lamps on shutter tester).
3. Following table is switches position of the Digital time counter and Multiple tester for measurement items.

Switches position of Digital time counter			
Measuring items	CH	TRIG LEVEL	TRIG SLOP
SW4-MG	A CH	−0.5−−2(V)	⊖
	B CH		⊕
SW4-1C	A CH	−0.5−−2(V)	⊖
	B CH		⊕

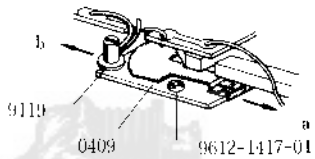
Multiple tester

Switches position	
Switches	Position
V-1 ADJ	V-1=3V
POWER	MAIN
4337	Free
SS	Free

2) With the shutter dial set at "1/2000", release the shutter to read the respective time lags from the digital time counter while changing the "COUNTER" switch of the multiple tester from SW4-1C to MG-2C.

3) By regarding the time lag of MG-2C (the magnet is off to start the closure of the 2nd curtain) as B and that of SW4-1C (SW4 is on to start the opening of the 1st curtain) as A, adjust by moving the position of SW4 so that A and B are related in the equation of A = (B + 1) ± 0.5ms. For example, if the time lag of MG-2C is 7ms, adjust the time lag of SW4-1C so that it becomes (7 + 1) ± 0.5ms = 8 ± 0.5ms from the equation of A = (B + 1) ± 0.5ms. This adjustment is carried out by unfastening 9119 and 9612-1417-01 and moving the position of 0409 (SW4). See Fig.33.
For the relationship between the movement of SW4 and time lag A, the time lag becomes longer by moving 0409 in the direction of Fig. 33-a, and shorter by movir it in the direction of Fig. 33-b.
Note: Time lag B is set by adjusting the over-charge lever in "HOW TO ADJUS 14 and mounting the magnet core (4025) when assembling.

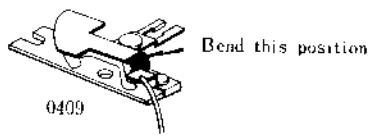
Fig. 33



4) If the above relationship between time lags A and B cannot be obtained by movin SW4, remeasuring and adjustment must be carried out by moving the position of the magnet core (4025).

5) By changing the "COUNTER" changing switch to SW4-MG, release the shutter several times at the shutter speed of 1/2000 to measure the time lag between SW4-ON and Magnet-OFF. If this time lag is constant in the range of 1.5 ± 0.5ms, it is correct. If not, however, SW4 is unstable and therefore it is necessary to bend the contact of SW4 so that its contact pressure increases. See Fig.34.

Fig. 34

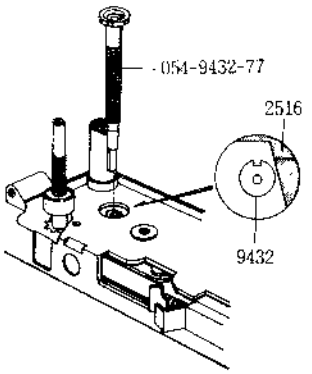


21. Winding Release Lever Adjustment

Adjusting tool: 054-9432-77

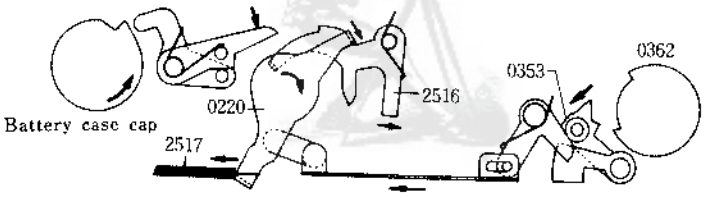
1) Keep the shutter wound, and turn the eccentric shaft (9432) with 054-9432-77 so that 9432 comes in perfect contact with 2516 without any clearance between them. See Fig. 35. In this case, be sure that 9432 does not press 2516.

Fig. 35



2) With the shutter dial positioned at any place other "B" and "X", release the shutter to make winding impossible and check that when the battery case cover is turned 90° clockwise, 2516 and 0220 are freed from their lock positions with 0220 being reset by the force of 2517 and 0353 is removed from 0362 to make winding possible. See Fig. 36.

Fig. 36



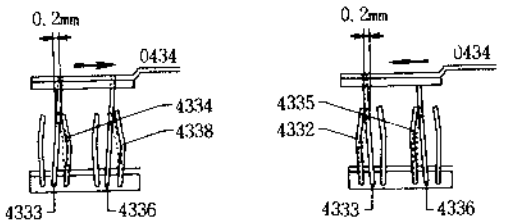
3) With winding completed, operate the battery case cover to check that 2516 and 0220 are not freed from their lock positions.

22. AM Changing SW Adjustment

By turning the shutter dial to "X" ↔ "AUTO" ↔ "2000", check that the AM SW operation lever (0434) operates smoothly, and adjust the following:

1) By turning the shutter dial to the "AUTO" position, adjust by bending 4334 and 4338 so that 4333 and 4336 are pulled by 0434 to come in contact with 4334 and 4338. See Fig. 37. Be sure that 4334 and 4338 are bent about 0.2mm visually when in contact.

Fig. 37



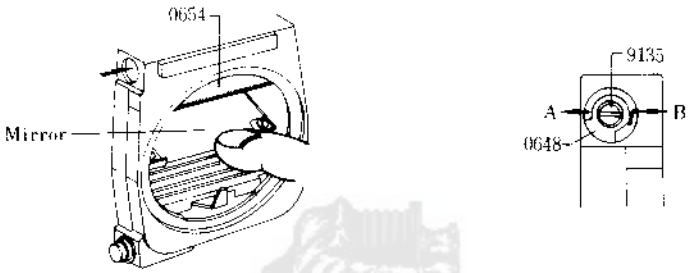
2) Adjust by bending 4332 and 4335 so that when the shutter dial is turned to "X" or "2000", 4333 and 4336 fall away from 4334 and 4338 to come into contact with 4332 and 4335, which are bent at about 0.2mm similar to paragraph 1) above.

23. Shutter Start Lever Adjustment

1) With winding completed and the mirror pressed with your finger, release the shutter button. To adjust, unfasten 9135 and change the position of 0648 so that the shutter curtain runs after the mirror has come in contact with the light shield plate (0654) while lifting the mirror gradually.

2) If the shutter curtain does not run even when the mirror has been completely lifted, move 0648 in the direction shown in Fig. 38-A and if the shutter curtain runs before the mirror contacts the light shield plate (0654), move 0648 in the direction shown in Fig. 38-B.

Fig. 38

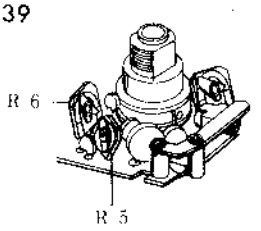


24. Shutter Speed Adjustment

Measuring instrument: Shutter tester

1) When the curtain speed has been adjusted in "Curtain Speed Adjustment" (the 1st curtain speed is 8 ± 0.1ms and the 2nd curtain speed is 8.5 ± 0.1ms when the shutter dial is set at "B"), adjust the shutter speed by turning R5 (Fig.39) so that 1 sec. becomes 990 to 1010ms.

Fig. 39



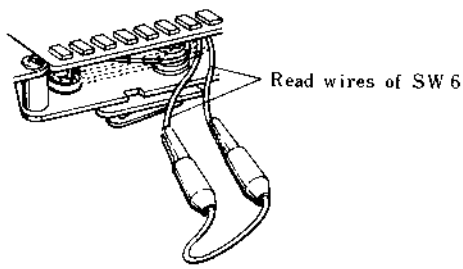
2) By setting the shutter dial to "1/2000", check that both the 1st and 2nd curtain speeds are 8 ± 0.1ms. If necessary, adjust the curtain speed according to the "Curtain Speed Adjustment".
3) Turn R6 (Fig. 39) to adjust so that the exposure time for the center of the picture plane ranges from 0.5 to 0.55ms.
4) Apply fine adjustment to the 1st and 2nd curtain springs so that the exposure time at both ends of the picture plane are identical, and recheck the exposure time for the central part of the picture plane.
5) Check the respective speeds of 1/1000, 1/250, 1/30, 1 sec. and "X" and confirm that they are with in the range listed in the following table:

Dial Position	1	1/30	1/250	1/1000	X	
Basic exposure (ms)	1,000	31.3	3.91	0.977	—	
Permissible range (ms)	870-1150	27.2-36.0	3.8-4.81	0.79-1.20	with batterys	11.0-13.2
					no battery	10.3-13.2

6) As shown in Fig. 40, remove the soldered lead wires of SW6, connect both ends with connecting clips and check that the L.E. exposure time is with in the range listed in the following table:

Dial Position	1	1/2	1/4	1/8
L.E. Time (sec.)	16	8	4	2
Permissible range (sec.)	14.5-17.5	7-9	3.5-4.6	1.74-2.30

Fig. 40



Note: If the L.E. exposure time is out of the permissible range when 1 sec. is adjusted to 990 to 1010ms, adjust the L.E. time with in the permissible

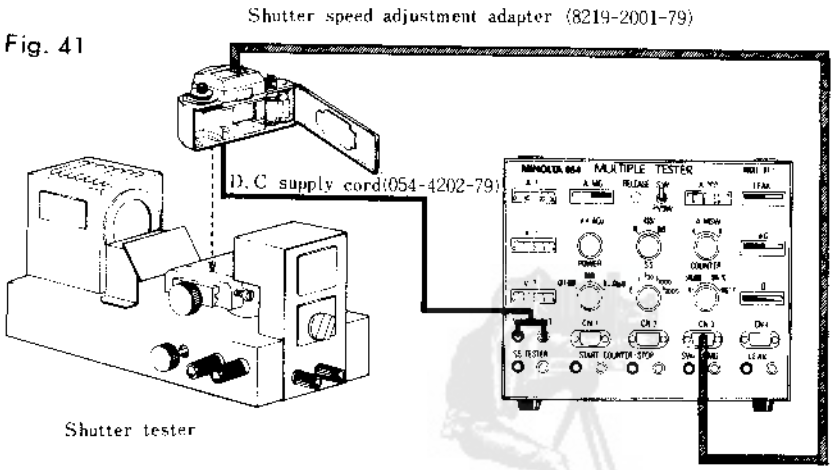
25. Auto Shutter Speed Adjustment

Measuring instruments and tool: Multiple tester (Model MT-[ ])
Shutter speed adjustment adapter (8219-2001-79)
Shutter tester
DC supply cord (054-4202-79)

How to use : See the operation manuals of "Multiple tester" and "Shutter speed adjustment adapter".

1) With the shutter dial of the body positioned at "AUTO", attach the shutter speed adjustment adapter to the body and connect the multiple tester and DC supply cord as shown in Fig. 41.

Fig. 41



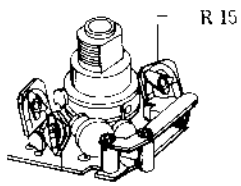
Multiple tester switches posit

Switches posion	
Switches	Position
V-1 ADJ	V-1=3V
POWER	MAIN
4337	Free
SS	1, 1/30, 1/1000, 1/2
A-MSW	Free
COUNTER	N

Caution: Check the DC supply cord contact position of plus and minus side, then connect to the Multiple tester.

2) By setting the "SS" change switch to "1/30", release the shutter to be adjusted by turning R 15 (Fig. 42) so that the shutter tester indicates 31.3ms.

Fig. 42



3) By changing the "SS" change switch to 1, 1/1000 and 1/2000, release the shutter to check that the shutter tester indicates values for the respective speeds within those listed below:

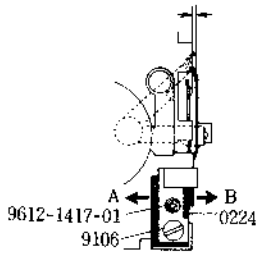
"SS" Change SW Position	1	1/30	1/1000	1/2000
Basic Exposure Time (ms)	1,000	31.3	0.977	0.488
Permissible Range (ms)	812-1231	25.5-38.5	0.812-1231	0.40-0.60

26. Synchro-Time Lag and Contact Efficiency Adjustment

Measuring instruments: Shutter tester
Contact efficiency meter

1) With the synchro change switch knob positioned at the "FP" side, measure the FP time lag and adjust the clearance between the contacts of 0224 so that the value of the FP time lag ranges from 10 to 12ms.
2) Remove 4326 (Resistor base plate) and loosen 9106 and 9612-1417-01. Then move 0224 in the direction shown in Fig. 43-A when the time lag is more than 12ms and move it in the direction shown in Fig. 43-B when the time lag is less than 10ms.

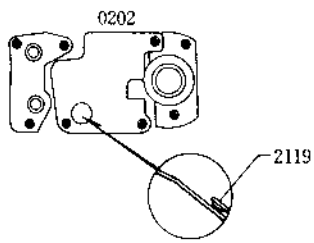
Fig. 43 Gap of the FP contact



Caution: Do not move 0224 too much as a short-circuit will result or no contact occurs.

3) Position the synchro switch knob at the "X" side and measure the time lag of the X contact. Then adjust the clearance of 0202 so that the value of the time lag is more than 0.3ms in the range A (the range from the time the X contact is turned on to that when the 1st curtain begins to open). When the time lag is below 0.3ms, slightly widen the clearance between the contacts of 0202 by bending 2119 (X contact B). See Fig. 44.

Fig. 44



Checkpoint: Be sure to check that the time up to range B (the range from the time the X contact is turned on to that when the 2nd curtain begins to close) is more than 2.3ms with betterys loaded into the camera and more than 1.5ms without battery. If the time lag of range B is below the above mentioned standard, draw the time lag of range A closer to 0.3ms but do not lower it below 0.3ms.

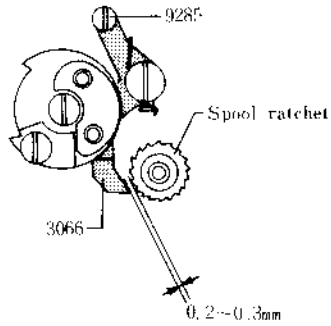
4) After adjusting the time lags of the "FP" and "X", measure the contact efficiency to check that it is more than 70% for both the "FP" and "X" (measuring time is 2.5ms for the "FP" and 1ms for the "X"). When it is below 70%, clean the contacts of 0224 and 0202, and bend them so that their contact pressure increases.

Caution: When bending the contacts, be sure to check the time lags.

27. Double Exposure Adjustment

1) Adjust by turning the eccentric pin (9285) so that the clearance between the spool lock lever (3066) and spool ratchet is 0.2 to 0.3mm when the R button is reset. See Fig. 45.

Fig. 45



2) Check the clearance according to the "CHECK LIST" and adjust by turning the eccentric pin if it is not within the permissible range.

Note: When adjusting the above, remove 0361 so checking will be easy.

28. Penta Lock Stroke Adjustment

1) With the top cover removed, mount the penta prism lock button block, and adjust by bending 5206 so that the penta prism block can be removed when the penta lock button head is in the range of +0.1 to −0.6mm from the plane A (Fig. 46) of the penta lock button lock ring (5204). Bend 5026 in the direction of A (Fig. 47) when the removal position is deep and bend 5026 in the direction of B (Fig. 47) when it is shallow.

Fig. 46

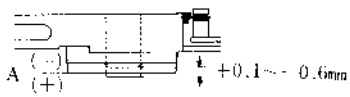
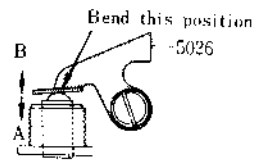
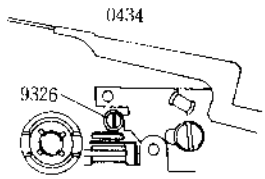


Fig. 47



2) Check that the front and rear of the penta prism block ate locked (or unlocked) simultaneously. If not, lift 0434 as shown in Fig. 48, turn the eccentric pin (9326 properly to alter the lock timing on the rear of the penta prism block and adjust it so that the front and rear are locked (or unlocked) simultaneously.

Fig. 48



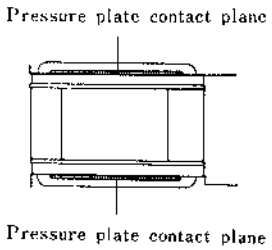
29. Body-Back Adjustment

Measuring instruments: New standerd gauge for body-back adjustment (Minolta make)
New standerd flat plate (Minolta make)
Dial gauge

How to use : See the operation manual of "Body Back Adjustment and Gauge usage".

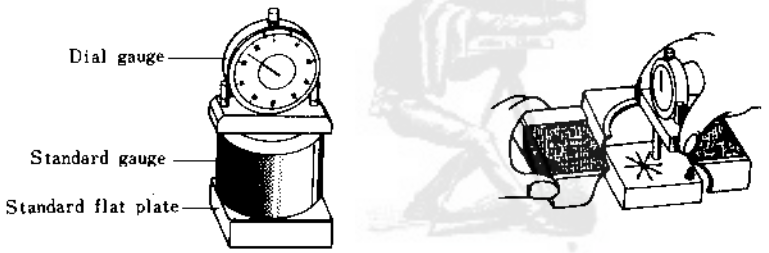
1) Open the back cover, set the shutter dial to "B", and place the back cover on the new standard flat plate while the shutter remains opened. In this case, be sure that the pressure plate shown in Fig.49 is in correct contact with the flat plate.

Fig. 49



2) Measure the body back by moving the dial gauge vertically, horizontally and diagonally as shown in Fig.50.

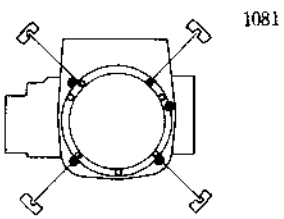
Fig. 50



3) If the measured value is not within the standard value of 43.70 to 43.72mm. adjust by replacing the adjustment washer (1081···See Fig. 51) properly so that the measuredvalue is within the standard figures. For the types of adjustment washers, see the following table:

Types	1081-81	-83	-85	-87
Thickness	0.02mm	0.05mm	0.06mm	0.1mm

Fig. 51



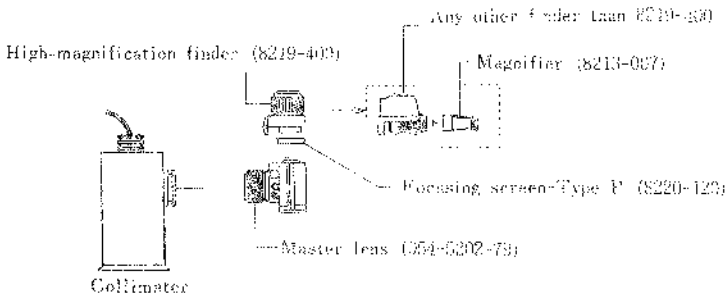
30. Finder-Back Adjustment

Measuring instruments: Master lens for 054 finder-back adjustment (C54-5202-79)
Collimater

Other used : Focusing screen-Type P (8220-120)
High-magnification finder (8219-409) or any other finder than
High-magnification finder plus Magnifier (8213-007)

1) Mount the master lens, the screen and the finder on the body. See Fig 52

Fig. 52



2) Match the white line of the master lens and look into the finder to check that the chart of the split image coincides with a straight line. If not, carry out the following adjustments:

3) When the chart coincides with the straight line within the rotary angle of the helicoid between the red lines while turning the helicoid, read out the deviation amount (1 graduation is equivalent to 1/100) from the white line and regulate the focus adjustment washer (5202···See Fig. 53) corresponding to the deviation length. For the permissible range, See Fig. 54.

Fig. 53

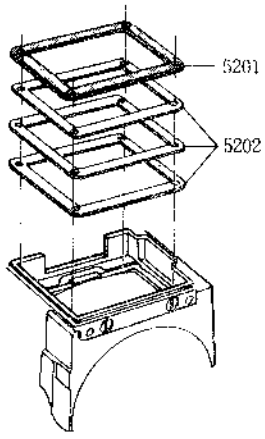
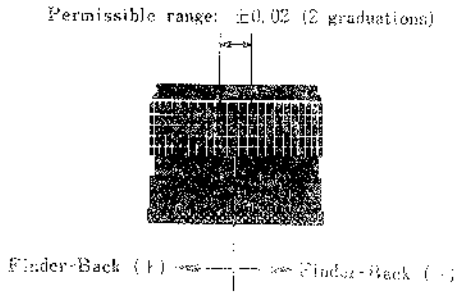


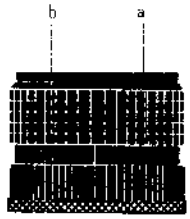
Fig. 54



Example (1): When the chart image coincides with the straight line with the while line of the master lens positioned as shown in Fig. 55-a, the finder back value deviates to the plus side by 6 (scale marks) × 1/100 = 0.06. Therefore, add the focus adjustment washer (5202) corresponding to that length to the finder back. For the types of 5202, see the following table:

Type	5202-11	-12	-13	-14	-15	-16	-17
Thickness	0.05mm	0.07mm	0.08mm	0.1mm	0.12mm	0.2mm	0.4mm

Fig. 55

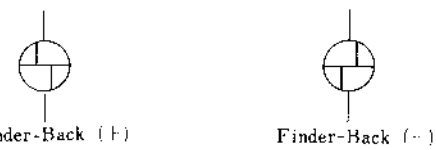


Example (2): When the chart image coincides with the straight line with the white line of the master lens positioned as shown in Fig. 55-b, the finder back value deviates to the minus side by 6 (scale marks) × 1/100 = 0.06. Therefore, remove the focus adjustment washer (5202) corresponding to that length.

Note: When adding or subtracting 5202 as shown in Examples (1) and (2), combine the 5202 properly if the exact thickness of 5202 corresponding to the corrected amount is unavailable.

4) If the chart image does not coincide with the straight line within the rotary angle of the helicoid, roughly ascertain the adjustment directions (the plus or minus of the finder back value) based on the deviation direction as shown in Fig. 56, and add or reduce 5202 to a greater extent so that the chart image can coincide with the straight line within the totary angle of the helicoid.
Then follow the adjustments described in paragraphs 3).

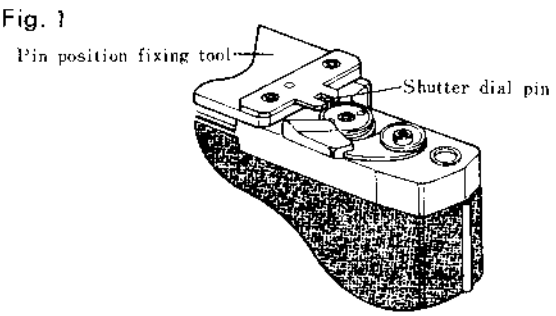
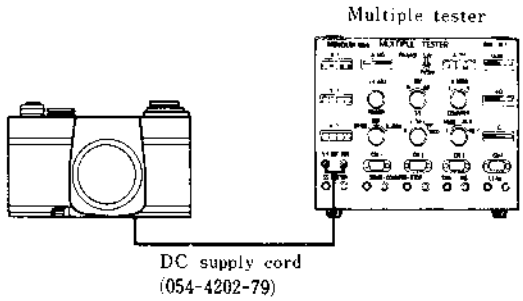
Fig. 56



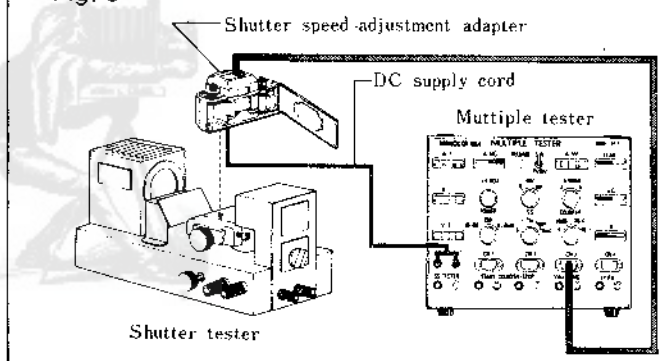
CHECK LIST (054)

Winding lever 1
Sprocket 1
Spool 1
Rewinding 1
Shutter button 1
Shutter dial 2
Shutter operation 2
Shutter speed 3, 4
Synchro 5
Mirror 6
Finder back 7
Body back 7
Lens mounting and dismounting 7
Pre-set lever 7
Pre-view 8
Self-timer 8
Long time exposure 8
Film counter 9
Double exposure 9
Picture plane position 9
Film indicator 9
Body switch 9
Battery checker 9
Battery chamber 10
Finder mounting and dismounting 10
Focusing screen mounting and dismounting 10
Back cover 10
Pressure plate 10

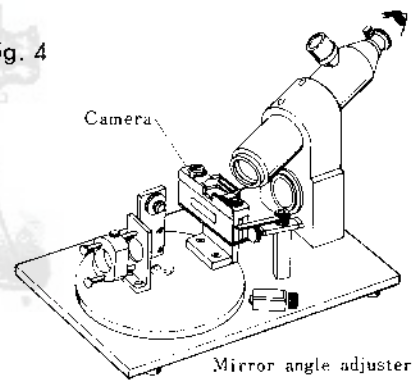
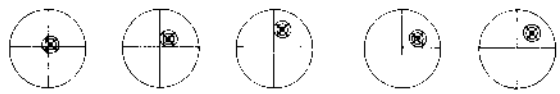
Part	Item to be Checked	Checks and Corrective Measures (Standards or Specifications)
Winding lever	Operation	Must operate smoothly and easily without hitching or jerking. Does not perform winding during exposure time but can carry out another winding after curtains have run.
	Winding angle	$109^{\circ}{}^{+10^{\circ}}_{-0}$
	Winding torque	1600g Max. when loading camera with film and 1300g Max. at any other time.
	Excess angle & friction	$20^{\circ} \pm 5^{\circ}$ for excess angle and 200 ± 100g for friction.
	Winding ratchet	Be sure that it operates correctly. There should be no mark marked return of the curtains when wound in short strokes.
Sprocket	Change of sprocket shaft	Sprocket is released when R button is pushed. It should cause no unevenness or hitch but turn smoothly in either direction for both winding and rewinding. It must be reset correctly by another winding.
	Height of R button	R button must be positioned above the concave surface of the lower cover when the sprocket is locked (when it idles). Its resetting position is within the cover.
	Sprocket position	Must match the perforations at the proper picture plane position.
Spool	Operation	Must operate smoothly without any noticeable eccentricity when operated by the winding lever. On depressing the R button, it turns clockwise only with its counterclockwise turning being locked. No noise should occur when it is turned clockwise.
	Idling torque	$200\text{g} \pm 50\text{g}$
Rewinding	Operation	Rewinding must be carried out smoothly without any creak or hitch in turning.
	Rewinding load	$450\text{g} \pm 200\text{g}$ for the tip of the rewinding crank.
	Rewinding knob	Be sure the knob is free of noticeable eccentricity or unevenness when turned. At the same time, check the efficiency of the spring.
Shutter button	Operation	When pushing the shutter button in different manners (quick, slow depression or with the use of release), be sure that there is no noise, hitch or jolt which causes the camera to move.
	Stroke excess	Be sure the shutter button is released at 1.4mm to 1.7mm from its original position. Excess after releasing should ran range from 0.3mm to 0.6mm.
	Release load	$400\text{g} \pm 200\text{g}$
	Cable release	Be sure that the shutter button is correctly released with cable release mounted and that no rotation or abnormal noise occurs.

Part	Item to be Checked	Checks and Corrective Measures (Standards or Specifications)
Shutter dial	Rotation	Must rotate smoothly in any direction without abnormal noise. Be sure that there are clear clicks at the respective shutter dial positions.
	Index matching	Be sure that the center of each shutter speed value is within the index of the finder when the latter is set.
	Shutter dial pin position	With the shutter dial positioned at "AUTO", the Pin position fixing tool (054-9218-79) is set. At this time, be sure that the shutter dial pin is inserted in the groove of the Pin position fixing tool. See Fig. 1. Fig. 1 
Shutter operation	Shutter curtain running	Be sure that there are no noises, opening, snapshot (shutter is released but curtains remain unopened) or appearance of shutter curtains when releasing the shutter at the various shutter speeds.
	Shutter curtain bounding	Be sure that neither 1 st nor 2 nd shutter curtain bounds within the aperture frame.
	Shutter curtains	Curtains must be overlapped during winding so that the slit of the 1 st curtain is completely covered. Be sure that the slits of the 1 st and 2 nd curtains are inclined within 0.3mm to the perpendicular of the aperture frame. The curtains should be free from slack, pinholes or oil stains and should not be concave.
	"B" and "X"	The shutter must operate correctly, regardless of the presence of a battery, when released with the shutter dial set at "B" or "X". No "B" opening or snapshot (shutter is released but curtains remain unopened) should occur.
	Critical working voltage	Must operate correctly when released at each shutter speed using a Multiple tester (Model MT-1) and a DC supply cord (054-4202-79) while V-1 of the Multiple tester is taken as critical voltage (2±1V) for the B.C. lamp. See Fig. 2. Fig. 2 

<table>
<tr><th>Part</th><th>Item to be Checked</th><th>Checks and Corrective Measures (Standards or Specifications)</th></tr>
<tr><td rowspan="2">Shutter speed</td><td>Shutter curtain</td><td>By measuring with a shutter tester, speeds for both the 1 st and 2 nd curtains must be within the range from 7.5ms to 8.5ms with the dial positioned at "X".</td></tr>
<tr><td>Exposure time</td><td>Must be within the permissible ranges shown in Tables 1 and 2 when measured using a shutter tester.
Table 1
<table>
<tr><th>Speed indicator Scale</th><th>Standard exposure (ms)</th><th colspan="2">Permissible range (ms)</th></tr>
<tr><td>1</td><td>1000</td><td colspan="2">732 ~ 1366 (±0.45EV)</td></tr>
<tr><td>2</td><td>500</td><td colspan="2">366 ~ 683 〃</td></tr>
<tr><td>4</td><td>250</td><td colspan="2">183 ~ 342 〃</td></tr>
<tr><td>8</td><td>125</td><td colspan="2">91.5 ~ 171 〃</td></tr>
<tr><td>15</td><td>62.5</td><td colspan="2">45.8 ~ 85.4 〃</td></tr>
<tr><td>30</td><td>31.2</td><td colspan="2">22.9 ~ 42.7 〃</td></tr>
<tr><td>60</td><td>15.6</td><td colspan="2">11.4 ~ 21.3 〃</td></tr>
<tr><td>125</td><td>7.81</td><td colspan="2">5.72 ~ 10.7 〃</td></tr>
<tr><td>250</td><td>3.91</td><td colspan="2">2.86 ~ 5.34 〃</td></tr>
<tr><td>500</td><td>1.95</td><td colspan="2">1.43 ~ 2.67 〃</td></tr>
<tr><td>1000</td><td>0.976</td><td colspan="2">0.72 ~ 1.33 〃</td></tr>
<tr><td>2000</td><td>0.488</td><td colspan="2">0.36 ~ 0.67 〃</td></tr>
<tr><td rowspan="2">X</td><td rowspan="2">——</td><td>with batterys</td><td>11.0 to 13.2</td></tr>
<tr><td>without battery</td><td>10.3 to 13.2</td></tr>
</table>
Table 2 (Time Exposure)
<table>
<tr><th>Speed indicator scale</th><th>Standard exposure (ms)</th><th>Permissible range (ms)</th></tr>
<tr><td>16</td><td>16</td><td>14.5 ~ 17.5 (+1.5sec)</td></tr>
<tr><td>8</td><td>8</td><td>7 ~ 9 (±1 sec)</td></tr>
<tr><td>4</td><td>4</td><td>3.5 ~ 4.6 (+0.2EV)</td></tr>
<tr><td>2</td><td>2</td><td>1.74 ~ 2.30 (±0.2EV)</td></tr>
</table></td></tr>
</table>

<table>
<tr><th>Part</th><th>Item to be Checked</th><th>Checks and Corrective Measures (Standards or Specifications)</th></tr>
<tr><td rowspan="3">Shutter speed</td><td>Variation in shutter</td><td>Maximum variation at the same shutter speed should be within the permissible speed ranges indicated in Tables 1 and 2.</td></tr>
<tr><td>Uneven exposure</td><td>Exposure time of both ends of the picture plane should be within 24% of that of the center at each shutter speed.</td></tr>
<tr><td>Auto shutter speed</td><td>With a Multiple tester (Model MT-1), Shutter tester, Shutter speed adjustment adapter (8219-2001-79) and a DC supply cord (054-4202-79) connected as shown in Fig. 3, each speed should be measured while changing the "SS" change switch of the Multiple tester to 1, 1/30, 1/1000 and 1/2000. Measured values must be within the permissible ranges shown in Table 3.
Table 3
<table>
<tr><th>"SS" change switch position</th><th>Standard exposure time (ms)</th><th>Permissible range (ms)</th></tr>
<tr><td>1</td><td>1000</td><td>732 ~ 1366(±0.45EV)</td></tr>
<tr><td>1/30</td><td>31.2</td><td>22.9 ~ 42.7 〃</td></tr>
<tr><td>1/1000</td><td>0.976</td><td>0.72 ~ 1.33 〃</td></tr>
<tr><td>1/2000</td><td>0.488</td><td>0.36 ~ 0.67 〃</td></tr>
</table>
Fig. 3
 
</td></tr>
</table>

<table>
<tr><th>Part</th><th>Item to be Checked</th><th>Checks and Corrective Measures (Standards or Specifications)</th></tr>
<tr><td rowspan="5">Synchro</td><td>FP & X change button</td><td>Change from FP to X or vice versa must be smooth and accurate.</td></tr>
<tr><td>Continuity</td><td>By using a continuity tester, check that the continuity is adequate for either FP or X. Be sure that no short-circuit occurs prior to shutter operation.</td></tr>
<tr><td>Insulation resistance</td><td>By using an insulation resistance meter (D. C. 250V), check the insulation resistance prior to, during and after winding as well as during the change from FP to X or vice versa. B Be sure that the resistance measured is 10MΩ or more.</td></tr>
<tr><td>Time lag</td><td>By using a shutter tester, the time lag between FP and X is measured and the results should be within the permissible ranges indicated in Table 4.
Table 4
<table>
<tr><th colspan="2">Measuring position</th><th>Permissible time lag (ms)</th></tr>
<tr><td>FR</td><td>Time from contacton to start of exposure</td><td>8 ~ 15</td></tr>
<tr><td>X (A range)</td><td>Time from end of 1 st curtain running to contact-on</td><td>0.25 ~ 3</td></tr>
</table>
Note: B range (time from the turning on of contact to the starting of the 2 nd curtain closure) of "X" time lag is 2.3ms or more when a battery is utilized and 1.5ms or more when no battery used.</td></tr>
<tr><td>Contact efficiency</td><td>Must be measured using a contact efficiency meter and measured values should meet the standards indicated in Table 5.
Table 5
<table>
<tr><th></th><th>Measuring time</th><th>Contact efficiency</th><th>Shutter speed when measured</th></tr>
<tr><td>F P</td><td rowspan="2">2.5ms
1 ms</td><td>70% or more</td><td>1/2000</td></tr>
<tr><td>X</td><td>70% or more</td><td>X</td></tr>
</table></td></tr>
</table>

Part	Item to be Checked	Checks and Corrective Measures (Standards or Specifications)
Mirror	Operation	The mirror operates accurately when the shutter is released in any camera position, vertical, horizontal or upside-down. The position of the mirror should not be changed by winding.
	Mirror lock	Mirror lock must be securely done by operating the pre-view button in an ordinary manner. (It is undesirable if mirror locking is possible only by giving additional force at the position where the pre-view button stops.)
	Lock position & index	The play between the upper and lower parts of the mirror when locked is within 2mm. The red index indicates that the upper and lower parts are in contact.
	Upper position	When releasing the shutter after opening the back cover and setting the shutter at "B", be sure that the mirror is above the aperture frame when seen from the film side.
	Bounding	When releasing the shutter at higher speeds (more than 1/125), be sure that the mirror does not jerk up when viewed from the film side.
	Mirror angle	Permissible range is 45° + 30′. Check the mirror angle with a Mirror angle adjuster (Model MA-Ⅱ) and be certain that the mirror angle remains within the permissible range when repeating releases and windings. See Fig. 4.
		Fig. 4  
	Mirror curtain	When releasing the shutter with "B" setting, be certain that the mirror curtain is correctly inserted in the pressure claw of the mirror holder causing no deviation or swell to the curtain when viewed from the film side.

Part	Item to be Checked	Checks and Corrective Measures (Standards or Specifications)
Finder back	Infinity position	Permissible range is 43.58 ± 0.02 (mm). Measure the finder back as shown in Fig. 5 and be sure that the ehite line of the master lens when the chart image is in a straight line is within 2 scale marks of the center line. See Fig. 6.
Body back	Body back	Permissible range is $43.70^{+0.02}_{-0}$ (mm). Measure the body back using a standard gauge, standard flat plate and dial gauge as shown in Fig. 7.
Lens mounting & dismounting	Mounting & dismounting	When mounting or dimounting the lens, there should be no hitch or creak. When mounting the normal lens, be sure that the bayonet has no play even if the helicoid barrel is turned.
Pre-set lever	Position	When setting the normal lens, no complete opening should occur. Moreover, when the smallest aperture is set and the shutter is released with "B" position, the lens must be completely stopped down. When stopped down by operating the pre-view button, be sure the lens is completely stopped down to the smallest aperture.
	Operation	Must operate accurately without any delay of the aperture. Check this visually.

Fig. 5

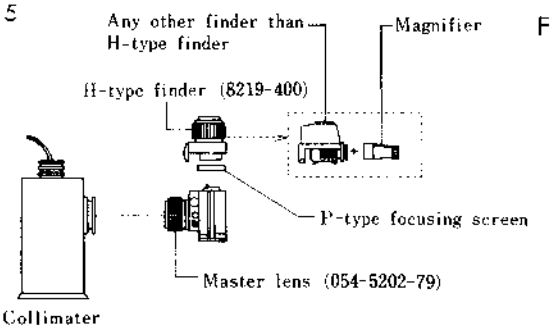


Fig. 6

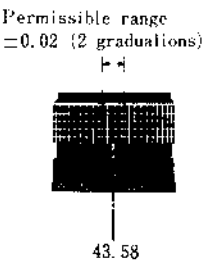
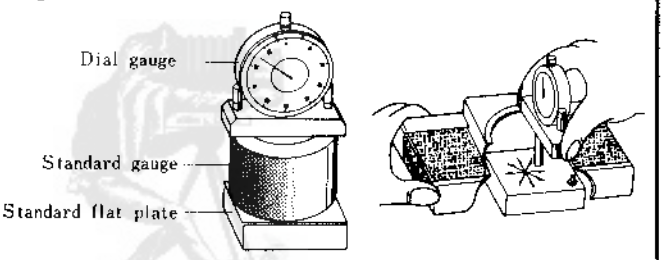
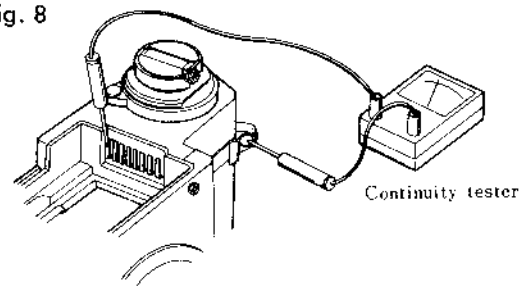
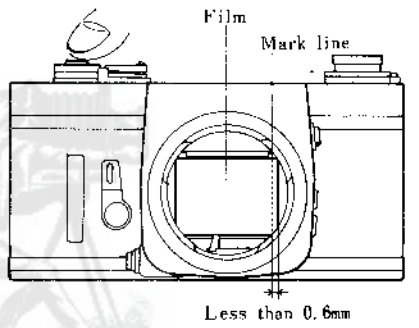


Fig. 7



Part	Item to be Checked	Checks and Corrective Measures (Standards or Specifications)
Pre-view	Button operation	Be sure that the pre-view button operates smoothly without hitch or uneven feel when repeating "stopping down" or "opening up" operations. Also, in response to the button operation, the pre-set lever must securely stop down the le lens and move to its reset position.
	PV switch	As shown in Fig. 8, check the continuity between the No. 8 connective contact and the body using a continuity tester. Be sure the switch is turned on (continuity) when the pre-view button is opened and off (no continuity) when it is closed. Fig. 8 
	Index position	The red index of the mirror lock is apart while not locked.
Self-timer	Operation	By setting self-timer and operating it, be sure that the shutter is released smoothly without any noticeable uneven gear sound or humming.
	Operation time	Maximum (full charge): 10 ± 1.5sec. Minimum (first stopper position): 6 ± 1.5sec.
	Charge angle	Lever must be stopped at 100° and started with the start button for releasing the shutter. Full charge angle: $150^{+0^\circ}_{-10^\circ}$
	Lever presetting position	Be sure that the self-lever is not in contact with the start button and that it does not lean forward. No start button or button seat should be seen from the stop position.
	Start button	It must be started with its head higher than the button seat. Be sure that it does not start even if a shock is given to it by manually tapping several times.
Long time exposure	Exposure time	See the item, "Shutter speed".
	Long time exposure lever	Lever must operate smoothly when operated with the shutter dial set at "B" (lever cannot be pushed when the shutter dial is set at any other position than "B") and thus it oprerates at set shutter speed when the index is in the center of the shutter speed value. Be sure that the lever is reset to its original position under the action of the spring when returned to "B" position.

Part	Item to be Checked	Checks and Corrective Measures (Standards or Specifications)
Film counter	Operation	By closing the back cover, releasing the shutter and operating the 2 nd winding, the film counter should indicate scale mark 1 and frames be forwarded one by one accurately up to scale mark 40. The film counter must be returned to its original (starting) position when the back cover is opened.
	Indicator plate position	When looking at the counter window from top be sure that the mark on the indicator plate is not noticeably out of position (or does not lean forward).
	Indicator deviation	The film counter must indicate a right marking by pointing to it correctly.
Double exposure	Deviation	Load the camera with film, release the shutter with "B" setting and close the shutter after marking a line on the position at the right end of the aperture frame (when viewed from the lens side) over the film while the shutter remains opened. Carry out two double exposure operations (depression of R button Winding Releasing) and check the movement of the line on film at the 2 nd operation. Deviated length should be less than 0.6mm. See Fig. 9. Fig. 9 
Picture plane position	Picture plane interval	For the film which has been wound in different ways (quick, slow and mincing winding operations), picture plane intervals should be $1.8^{+1.2}_{-0.8}$(mm).
	Perforation position	Be sure that the perforation is not in the center of the two adjacent picture plane interval.
Film indicator	Opetation	It turns with a force that does not hurt a finger at all but should not turn with a slight tough of the finger. Also, it must click accurately.
	Indication	Be sure that there is no noticeable deviation at each click position (white point) of 12, 20 and 36 and that the center of each film type index mark is in contact with the white point.
Body switch	Operation	Attach the AE finder (8219-200), turn off the switch on the finder side and push the body switch in a natural condition. In doing so, be sure that the EE operates correctly.
Battery checker	Lever operation	Lever should not be too much loose.
	Lamp lighting	By using the multiple tester and DC supply cord (054-4202-79), operate the V-1 ADJ" of the multiple tester to check that the checker lamp lights in the range of 2±1V.

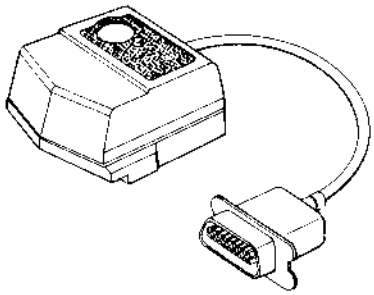
Part	Item to be Checked	Checks and Corrective Measures (Standards or Specifications)
Battery chamber	Battery case cap	Be certain that there is no continuity even when a battery is loaded reversely. Pay attention to the indicator plate of the battery case which should not be peeled off.
	Contact segment	Must have sufficient contact pressure and should be free from corrosion and permanent strain.
	Winding lock release	When the shutter is released with no battery loaded at any position other than "B" and "X") and the battery case cap is turned from O (open) to C (close) with the shutter condition out of order, be sure the mirror is completely reset and ready for another winding. However, the shutter must be in order even if the battery case cap is operated after completion of winding. Repeat the above battery case cap operations 5 or 6 times.
Finder mounting & dismounting	Mounting & dismounting	Finder should be readily and correctly mounted or dismounted without any play. Even if the finder is replaced, the finder back should remain unchanged. Also, contacts should be in perfect contact.
	Mounting or dismounting load	1500 ~ 2000g
	Penta lock button position	Finder must be removed when the head of the penta lock button is positioned 0.5 to 1.2mm above the penta lock button seat.
Focusing screen mounting & dismounting	Mounting & dismounting	Focusing screen must be readily and accurately mounted or dosmounted and should not be dropped even by putting the camera upside down and tapping it manually.
	Focusing screen position	The focusing screen position must remain unchanged even when the penta lock button is operated.
Back cover	Opening & closing	The back cover should be opened or closed smoothly without any noise or jolt. When locked it should not have any play.
	Lock load	Removal load (load when the rewinding knob is lifted)……800 ~ 1300g. Closing load……1500 ~ 2000g.
	ASA-DIN indicator	The ASA-DIN indicator should not be inclined nor should it be out of position.
Pressure plate	Condition	The pressure plate should be free from distortion or stains of foreign matters and should not be concave.
	Spring strength	The spring must have such a strength that the back cover is forced open when the rewinding knob is lifted.

054, 058, 062 SPECIAL TOOLS

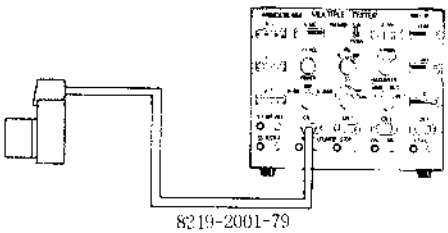
054, 058, 062 専用治工具

Code No. 8219-2001-79

Shutter speed adjustment adapter
シャッタースピード調整用アダプター

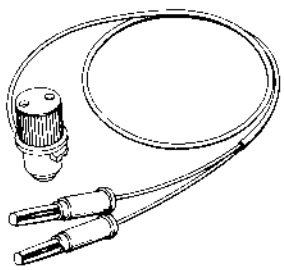


Using also with the 054 Multiple tester Model MT-I
054マルチプルテスターModel MT-Iと共に使用

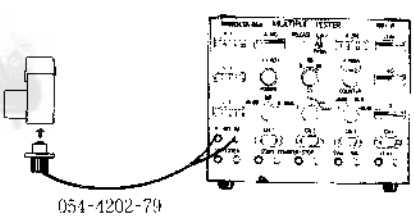


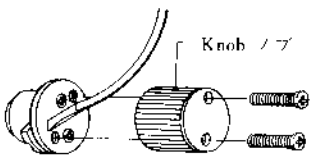
Code No. 054-4202-79

D.C. supply cord
電源アダプター



Using also with the 054 Multiple tester Model MT-I or the constant voltage D.C. power.
054マルチプルテスターModel MT-I又は定電圧直流電源と共に使用

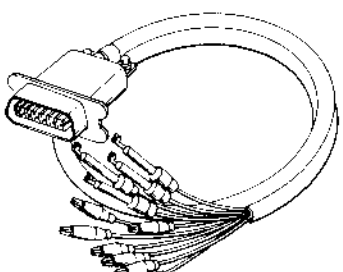


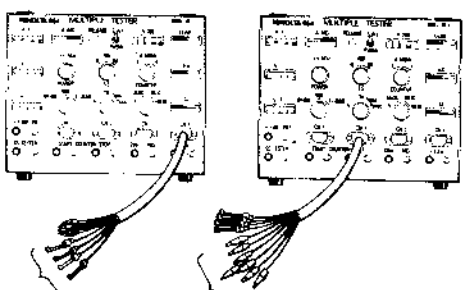


If there is impact, instead of take off the knob.
ノブが当る時はノブを外して使用すること。

Code No. 054-4337-79

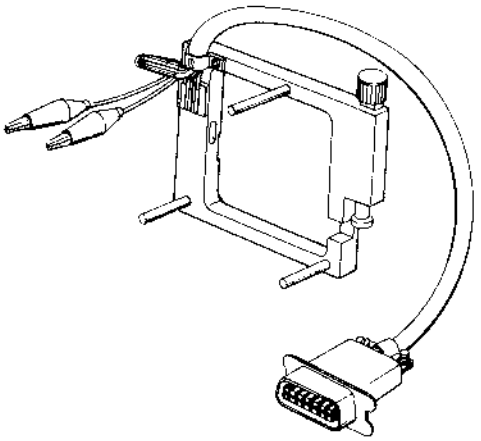
Checking connector
チェック用コネクター

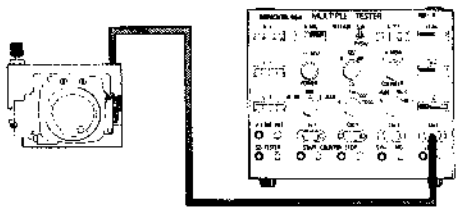




Code No. 054-5001-79

Mirror box switch adjuster
ミラーボックススイッチ調整台

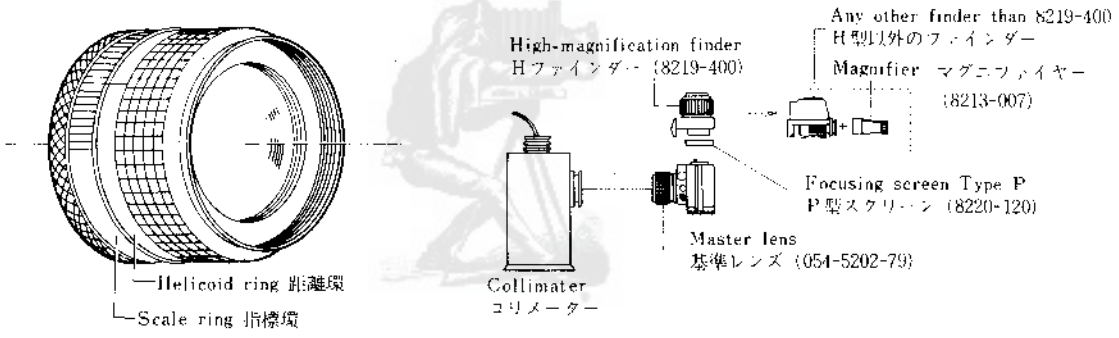




054-5001-79

Code No. 054-5202-79

Master lens for 054 finder-back adjustment
054ファインダーバック調整用基準レンズ



Flange back value of the master lens:

$$43.58\ ^{\ 0}_{-0.005\text{mm}}$$

(Agreement position for the helicoid ring white line and the scale ring barrel white line.)

基準レンズのフランジバック値：

$$43.58\ ^{\ 0}_{-0.005\text{mm}}$$

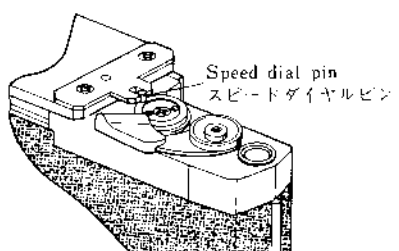
(距離環の白線と指標環の白線が合致した位置)

Scale of scale ring barrel
- White line ……0 position
- Green line ……±0.03mm
- Orange line……±0.06mm
- Red line ……±0.09mm
- Yellow and each line …0.01mm

指標環の目盛
- 白……0位置
- 緑……±0.03mm
- 橙……±0.06mm
- 赤……±0.09mm
- 黄及び1目盛……0.01mm

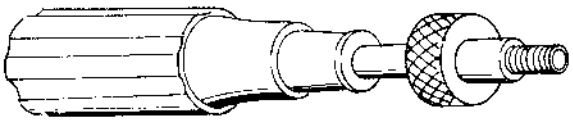
Code No. 054-9218-79

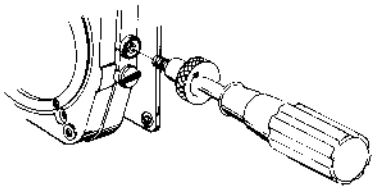
Speed dial pin setting gauge
スピードダイヤルピン位置決め具



Code No. 054-2291-77

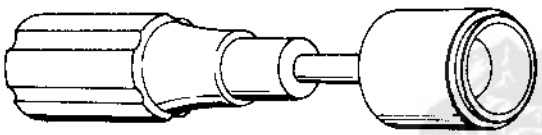
Synchio turminal spanner
シンクロターミナル用回螺器

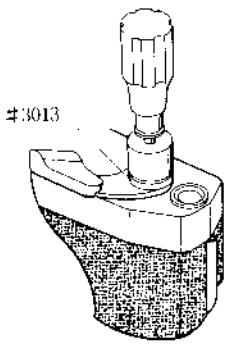




Code No. 054-3013-77

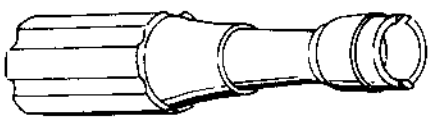
Winding lever cap spanner
巻上げレバーキャップ用回螺器

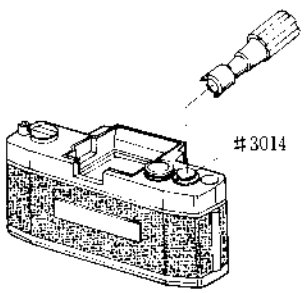




Code No. 054-3014-77

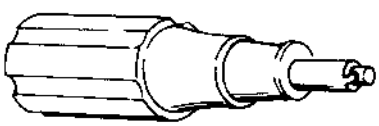
Decoration ring spanner
巻上げ軸飾り環用回螺器

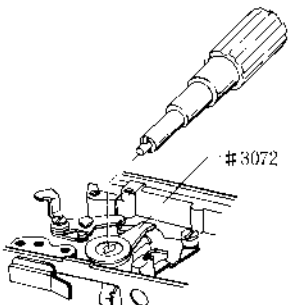




Code No. 054-3072-77

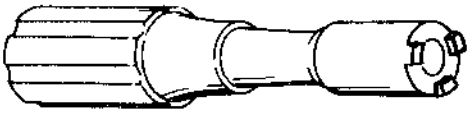
Chage lever-C axis receiver spanner
チャージレバーC軸受用回螺器

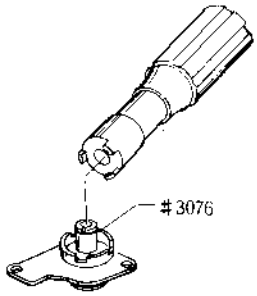




Code No. 054-3076-77

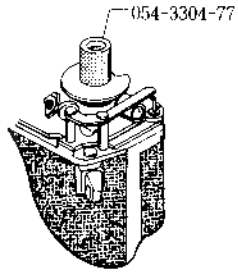
Winding ring spanner
巻上げ環用回螺器





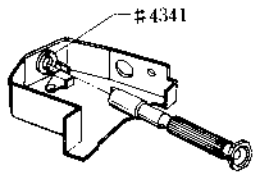
Code No. 054-3304-77

Rewinding axis temporary nut
巻戻し軸仮ナット



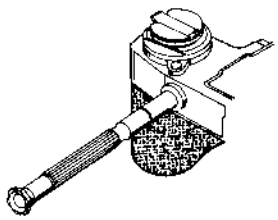
Code No. 054-4341-77

B. C. lever nut spanner
B. C. レバーナット用回螺器



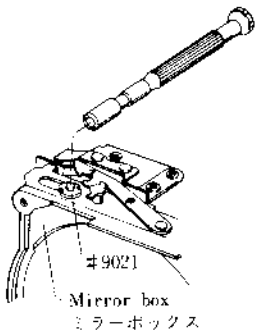
Code No. 054-5207-77

Button ring set screw spanner
釦座止めビス用回螺器



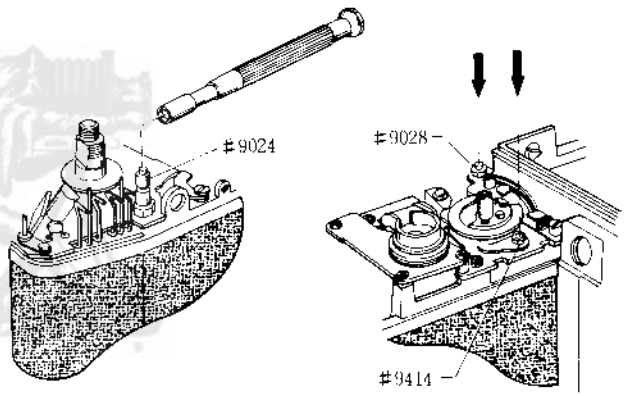
Code No. 054-9021-77

Pre-set operation plate axis-B spanner
絞り込み摺動板軸B用回螺器



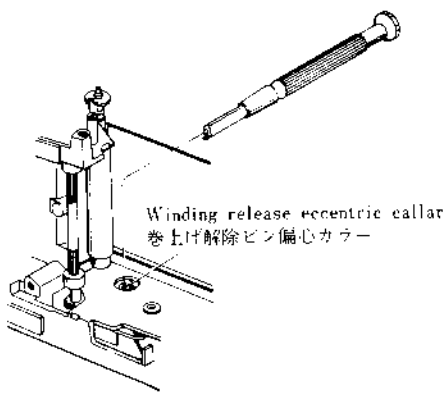
Code No. 054-9024-77

Penta lock spring hanger-A spanner
ペンタロックSP掛けA用回螺器



Code No. 054-9432-77

Winding release eccentric collar spanner
巻上げ解除ピン偏心カラー用回螺器



54, 058, 062 MEASURING INSTRUMENTS & TOOLS USED IN COMMON

54, 058, 062 測定器・共通治工具

Measuring instruments

- Sutter tester Model FS-1DMN4
- Digital time counter Model TC-Ⅰ
- Digital tester Model 2507
- 054 Multiple tester Model MT-Ⅰ
- Mirror angle adjuster Model MA-Ⅱ
- Collimater Model RC1000-Ⅲ
- Contact efficieney meter
- Insulation resistance meter

測定器

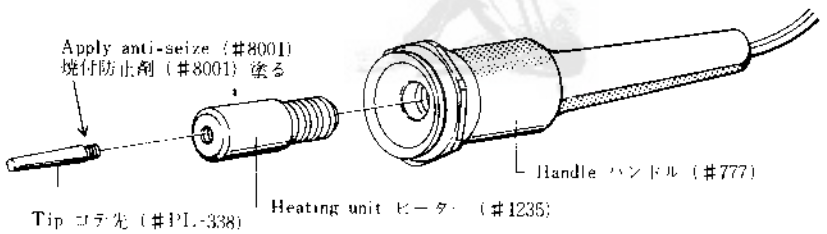
- シャッター試験器 Model FS-1DMN4
- デジタルタイムカウンター Model TC-Ⅰ
- デジタルテスター Model 2507
- 054マルチプルテスター Model MT-Ⅰ
- SRミラー角度測定器 Model MA-Ⅱ
- コリメーター Model RC1000-Ⅲ
- 接触効率計
- 絶縁抵抗計

Tools used in common

- Standerd gauge for body-back adjustment (New type)
- Standerd flat plate (New type)
- Dial gauge
- Soldering iron……"Vngar" brand

共通治工具

- ボディバック調整用基準ゲージ（新）
- 平行定板（新）
- ダイヤルゲージ
- 半田ごて……商品名"アンガー"



- Universal compass set
- Self motion button seat (1041)
  spanner→026-1041-77
- Outer barrel nut (2207)
  spanner→012-6007-77
- R button (3053)
  spanner→026-3053-77
- Self charge set screw (9121)
  spanner→012-2438-77

- 万能回螺器セット
- 始動鈕座（1041）用
  回螺器→026-1041-77
- 外筒締付ナット（2207）用
  回螺器→012-6007-77
- R鈕（3053）用
  回螺器→026-3053-77
- セルフチャージレバー止めビス（9121）用
  回螺器→012-2438-77